1. Project History

The Box Elder Transit Task Force came to be as a result of concerns regarding the future of the Blue Goose transportation service in the Box Elder County area. Budget cuts were forcing the Blue Goose to close their doors for several weeks during the year and those who relied on the service, primarily the elderly and disabled, were left without options to get to doctors appointments, shopping, and other needed destinations.

The transit task force came together to define problems and identify solutions for public transportation service in Box Elder County. Initial efforts of the task force focused on inventorying transportation providers in the area and where duplicative and overlapping services might exist. The task force identified more than 15 separate providers of transportation services. Most of the services were found to be non-coordinated and duplicated services that were funded by different organizations and sources, most of which lacked dedicated funding sources.

In order to better define the public transportation problem, Brigham City contracted with InterPlan in October 2003 to identify the specific elements of the problem, develop conceptual and broad-based alternatives along with a basic analysis of those alternatives. Findings of this report suggested that perceived inefficiencies of existing and uncoordinated transit service was partly due to the varying objectives of each transit service provider, for which transit service is often a secondary objective. Geographic limitations of service providers are also a constraint, with very little transit service coverage to Tremonton and the northern section of the Box Elder County. Like many public services, improvements to transit service are limited by the available funding dedicated to mass transit. However, with funding increases on par with other Wasatch Front communities, transit service to Box Elder County and Brigham City could be dramatically improved and would meet most of the objectives of the task force. Transit service improvements would require a detailed action plan to overcome hurdles associated with two separate transit agencies serving the neighboring counties as well as a taxpayer willingness to fund incremental transit service improvements.

One year later, Brigham City again contracted with InterPlan, with LSC, Inc. as a sub-consultant, to further examine transit alternatives for the area. This document is a summary of that process and includes discussion of the major components of that project, including refining transit service alternatives, estimating ridership, estimating costs and revenues, and defining policy and funding issues.

2. Transit Benefits

Public transportation service, or transit service, is any transportation system where individuals do not travel in their own personal vehicles. It includes light rail transit, commuter rail transit, buses, as well as several other forms of transportation. These, however, are the primary components of the existing and future public transit system in Utah.

The benefits of transit range widely in their context. From improved air quality to providing access to medical service and shopping opportunities, transit offers different benefits to every user and to every area. Overall, it provides choices for travelers, allowing workers to use alternative transportation modes to get to and from work and the disabled community access to many important destinations.

3. Existing UTA Service

The Utah Transit Authority currently serves Brigham City, Perry, and Willard. Route 630 provides service between Brigham City and the Ogden Intermodal Center from 5:30am to 9:30pm, Monday through Saturday. Route 685 offers express commute service between Brigham City and Ogden, with two southbound runs in the morning and one northbound run in the afternoon, Monday through Friday.

Despite the general success of UTA service filling the needs of Brigham City commuters, transit service to the mobility-impaired population has been a concern in both Brigham City and Box Elder County. Currently, UTA's paratransit service does not extend to areas beyond the UTA service area, so residents of Tremonton, for example, with special transportation needs are unable to use the service. In addition, use of UTA's paratransit service requires a certification of need, which is currently only done in Salt Lake County. It is difficult for those with disabilities, especially those without reliable transportation, to get to Salt Lake County to be certified.

Initial inquiries regarding additional transit service in Box Elder County rightfully turned to expanding UTA's existing service. While that may be a viable option in the future, especially as Brigham City population grows, there are obstacles to expanding UTA service in the near term. First, because Box Elder County is the farthest north portion of UTA's service area, it is not cost-effective to get buses to and from here, especially with relatively low population density compared to the more urban Wasatch Front counties. Second, because Box Elder County provides the geographic link between Cache Valley and Wasatch Front counties, coordinating service with Cache Valley Transit District/Logan Transit District might make more sense from a cost perspective than expanding UTA service, especially since CVTD/LTD's per mile and per hour costs are less than UTA's. Finally, UTA has not been as responsive to Box Elder area transit concerns, due primarily to UTA's limited resources. However, Box Elder County's representation on the UTA Board of Directors is indirect in that it comes from the Weber County representative on the Board. Without direct representation, it might be easier to prioritize Box Elder County's needs lower on the list of regional issues.

4. Demographics

Employment

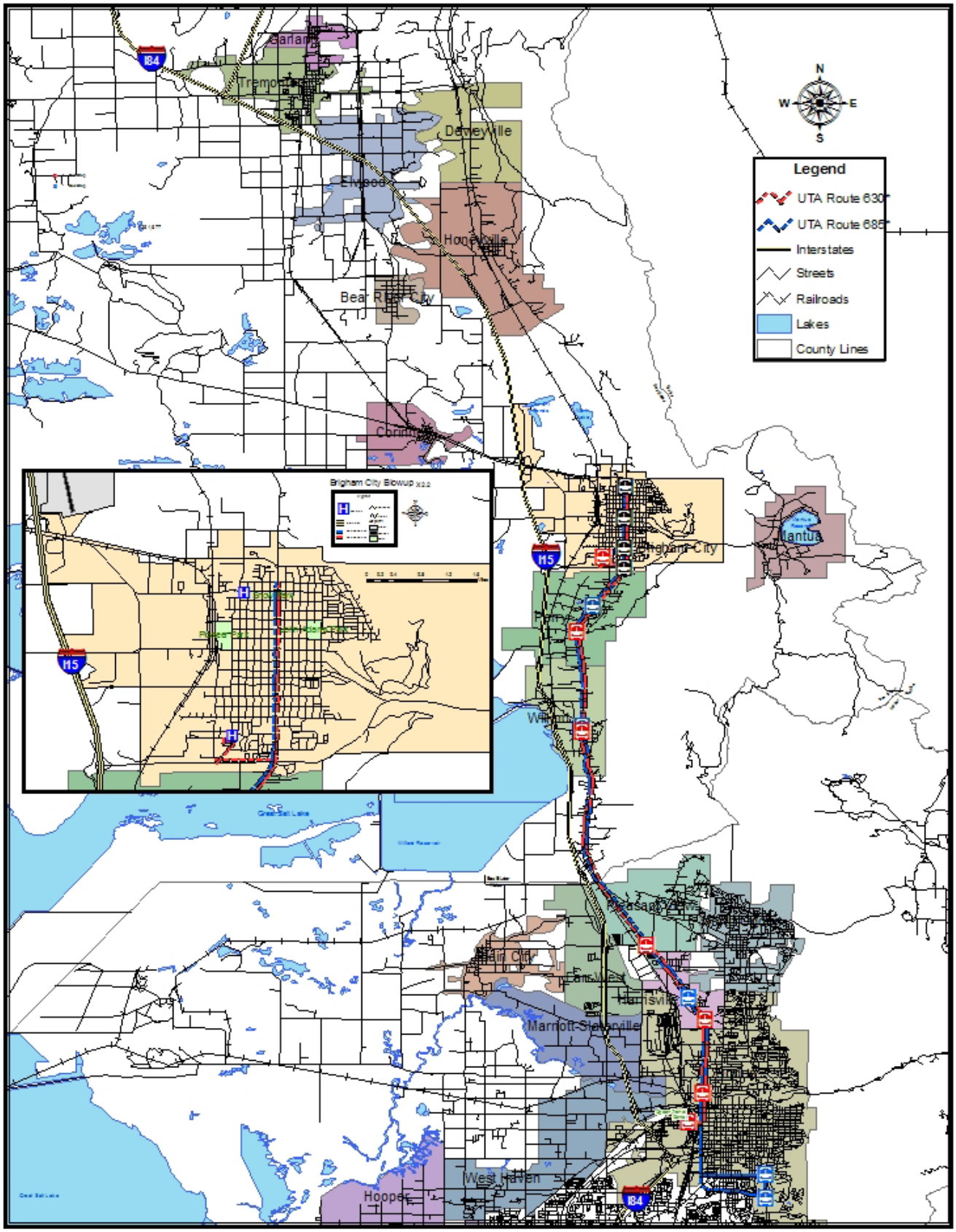
Commuter transit service in Brigham City serves a significant share of the total trips as compared to other transit systems. Table 1 displays the one-way daily work trips based on the year 2000 Census. Considering the transit market of Box Elder residents to Weber, Davis, or Salt Lake workplaces, UTA transit serves between 5 and 6 percent of the total demand. The UTA service area is shown in Figure 1.

Table 1: Daily One-Way Work Trips

	Workplace						
Residence	**Cache**	**Box Elder**	**Weber**	**Davis**	**Salt Lake**	**Utah**	**Other**
Cache	39,235	2,383	606	334	463	94	616
Box Elder	631	13,570	2,529	660	401	26	698
Weber	379	1,671	64,671	16,659	6,425	458	1,081
Davis	199	313	14,876	61,208	33,851	803	1,467
Salt Lake	224	80	2,084	8,370	411,283	8,075	8,511
Utah	12	14	317	842	18,159	140,834	3,399

Source: 2000 Census

Figure 1: UTA Service Coverage Map



Intra-county demand is approximately four times the inter-county demand to Weber, Davis, and Salt Lake Counties. Work trips from Weber, Davis and Salt Lake to workplaces in Box Elder County are probably not served since little of the employment base of the County is along the Main Street corridor, currently served by UTA routes. The number of inter-county work trips to Box Elder County from Weber, Davis and Salt Lake is approximately 57 percent of the inter-county work trips from Box Elder County to these three Wasatch Front counties. Inter-county work trips to and from Cache County, currently not served by transit, are also significant but slightly smaller than travel between Weber and Box Elder Counties.

The employment base in Box Elder County is still relatively concentrated among a few major employers. As the area grows, it can be expected that the employment base will diversify. However, presently the top ten employers in the County provide over 50 percent of the total jobs in the County. Table 2 lists the largest employers in Box Elder County.

Table 2: Box Elder County Largest Employers

Employer	Type of Work	Number of Jobs
Thiokol Corporation	Space Vehicle Manufacturing	2,000-2,999
La-Z-Boy	Furniture Manufacturing	1,000-1,999
Autoliv	Motor Vehicle Equipment Manufacturing	1,000-1,999
Box Elder School District	Public Education	1,000-1,999
Wal-Mart	Distribution Center	500-999
Nucor Steel	Steel Mill	250-499
Vulcraft	Fabricated Structural Metal Manufacturing	250-499
Wal-Mart	Discount Department Store	250-499

Although the existing UTA service area serves over 50 percent of the population base in Box Elder County, it serves relatively few of the County's top employment sites. Nucor Steel and Thiokol are north and west, respectively, of any significant population center. Similarly, the Wal-Mart Distribution Center in Corrine and the La-Z-Boy manufacturing in Tremonton are beyond the UTA service area. Figure 2 displays the location of major employers in Box Elder County.

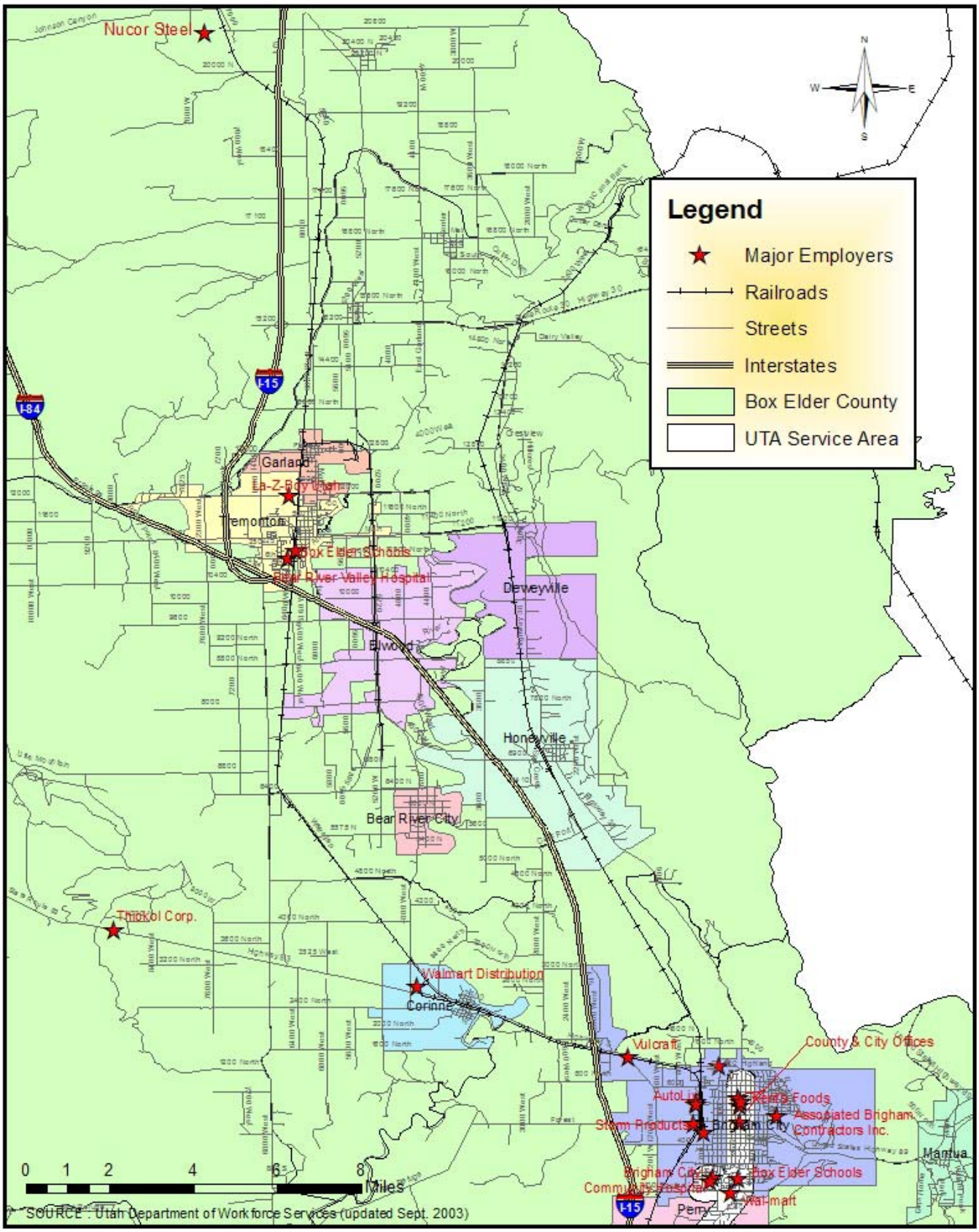
Other Transit Users

Providing transit service to the mobility impaired community, those people in greatest need of transportation assistance, is a difficult challenge in most rural communities. The Federal Transit Administration (FTA) provides funding assistance for capital purchases to private non-profit agencies providing transit services to senior citizens and persons with disabilities and operating assistance in rural areas. Rural para-transit service is a challenge nation-wide and the problems in Box Elder County are not unique. Transit service is most cost-effective when there is a concentration of either people or destinations. More discussion on funding sources is offered further in this document.

Of the approximately 44,000 residents of Box Elder County, slightly over half are served by UTA transit service in Brigham City, Perry, and Willard. In addition to commuters, the following groups are generally considered key users of transit service:

- People with disabilities,
- People living in poverty,
- Seniors (generally people age 75 and over), and
- People in households without access to a car.

Figure 2: Major Employers in Box Elder County



Maps of each of these transit market groups, based on data from the 2000 Census, are provided in Figures 3 through 6. In general, transit needs are focused in Brigham City, and to a lesser extent Tremonton City. Outside of these areas, transit markets are relatively scattered. It is worth noting that the graphics displayed in Figures 3 through 6 are based on random dots within census block groups. The randomness of these dots likely makes them appear less concentrated than the actual locations of specific homes.

Figure 3: People with Disabilities

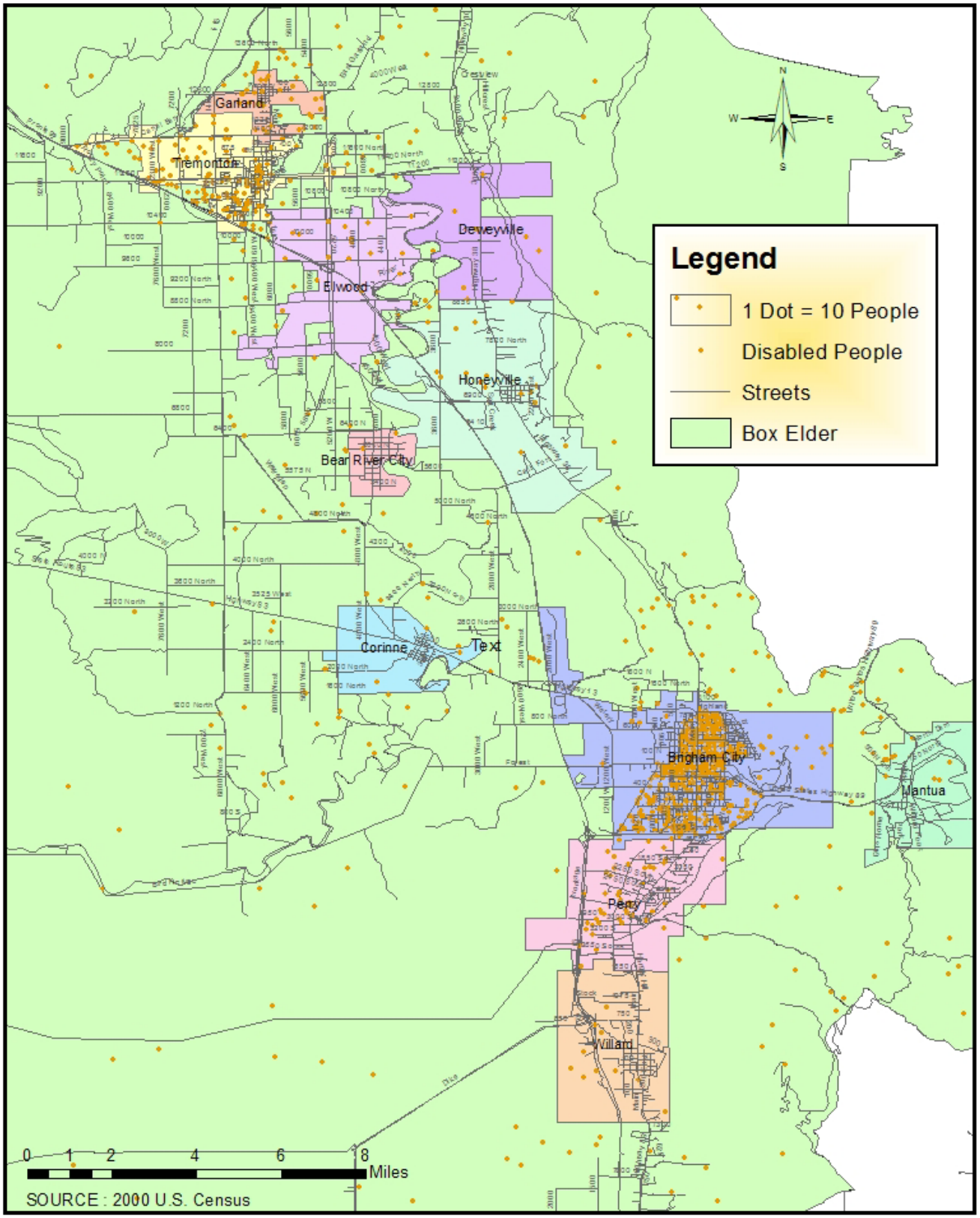


Figure 4: People Living in Poverty

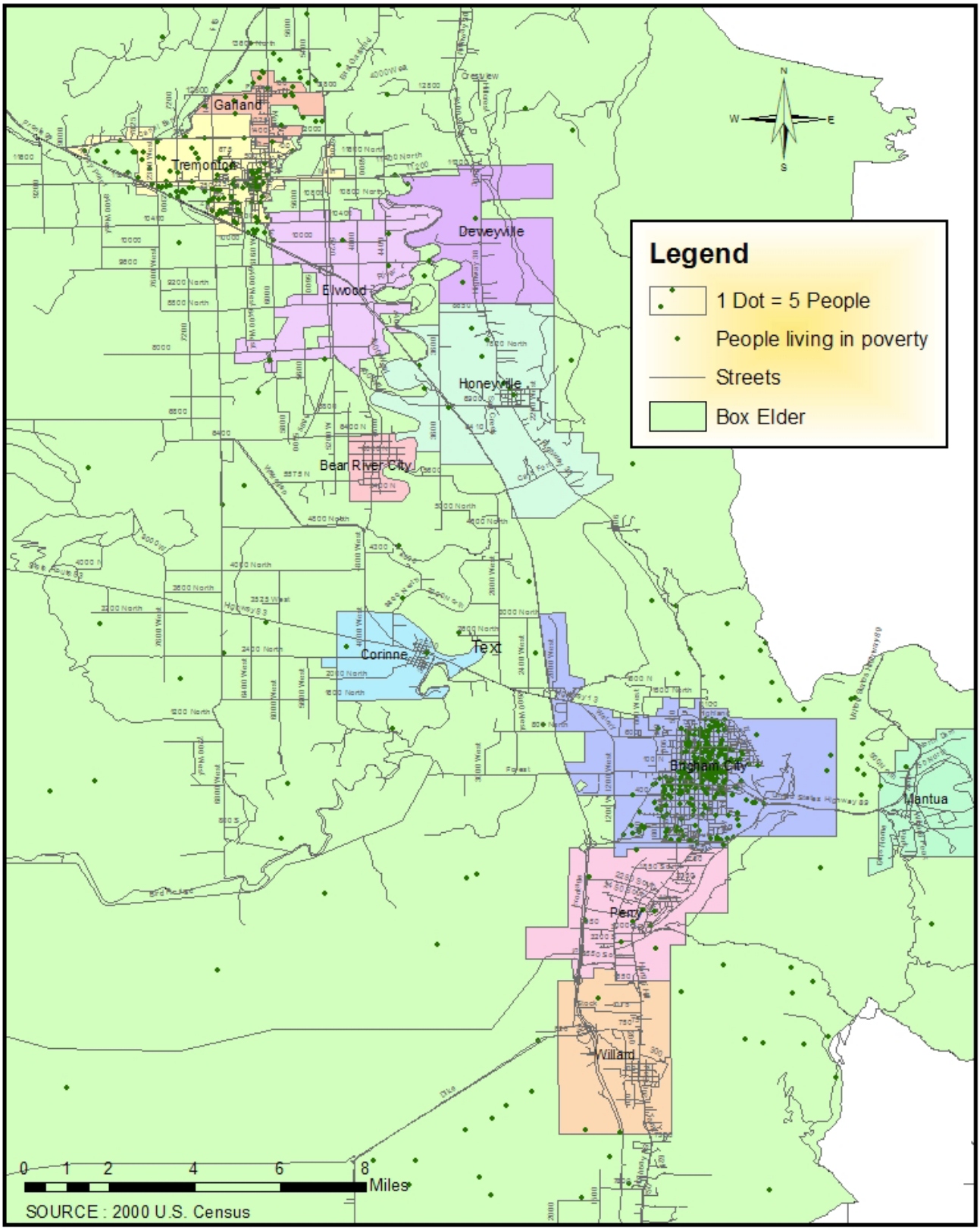


Figure 5: People Age 75 and Over

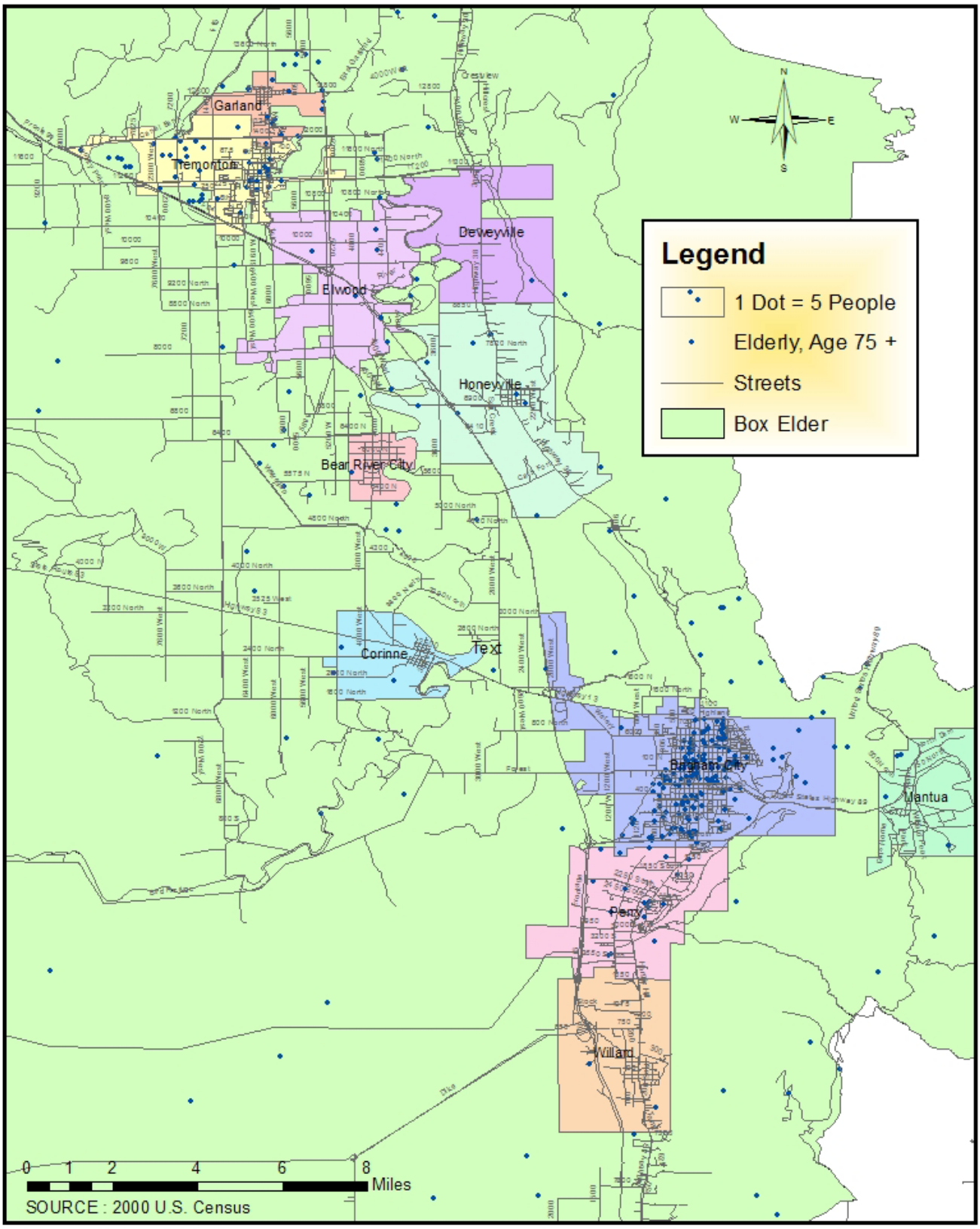
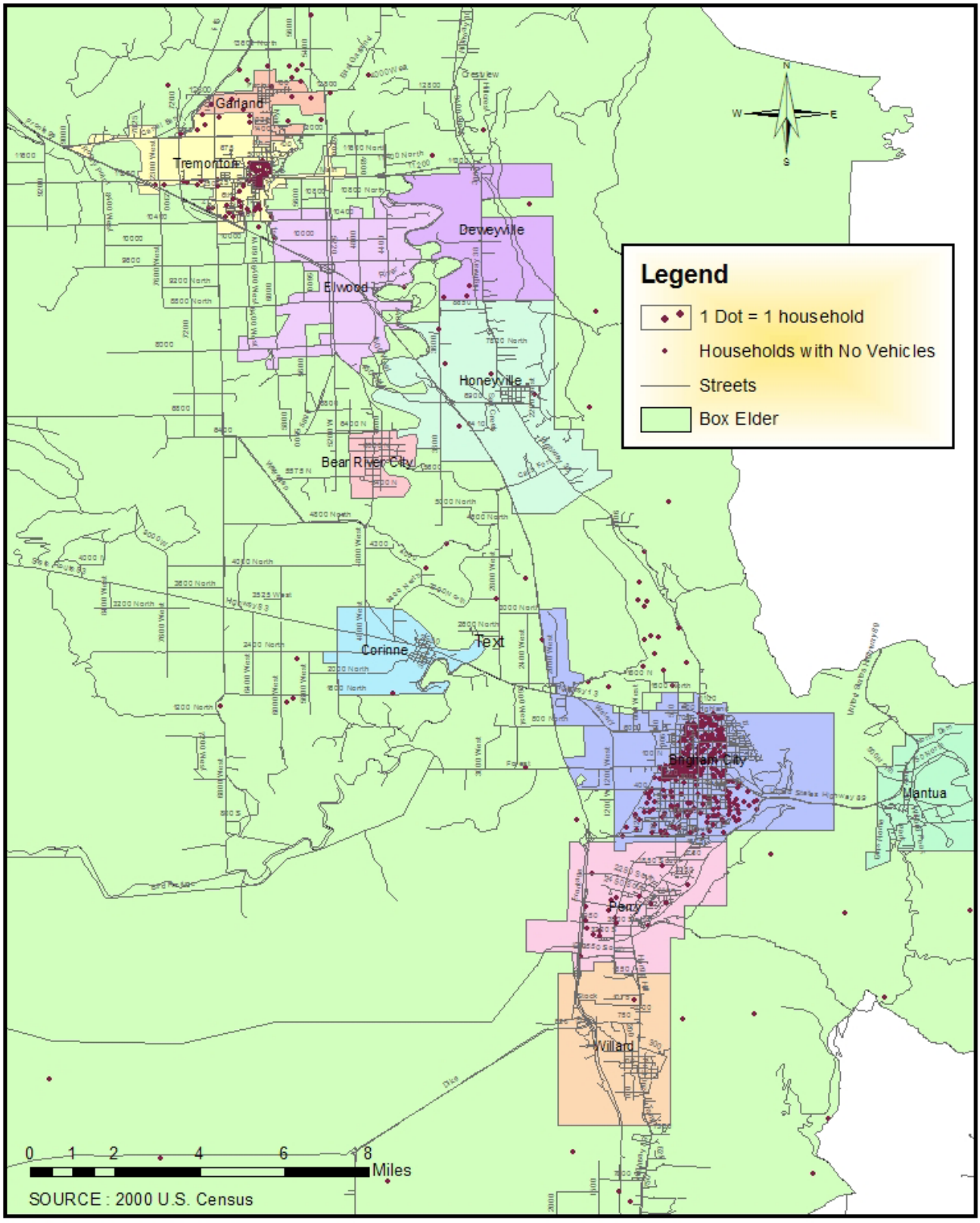


Figure 6: People in Households with No Vehicle



5. Transit Demand

Potential Transit Ridership Demand

A key step in developing and evaluating transit plans is a careful analysis of the mobility needs of various segments of the population and the potential ridership of transit services. Transit demand analysis is the basic determination of demand for public transportation trips in a given area. There are several factors that affect demand, not all of which can be forecast. However, as demand estimation is an important task in developing any transportation plan, several methods of estimation have been developed in the transit field. Two in particular are applicable to Box Elder County: the Transit Cooperative Research Program (TCRP) methodology developed for rural areas, and employee commute demand methodology.

The data required for these methodologies were taken from the 2000 US Census, as shown in Table 3. As indicated, this data was assembled by census tract, as well as by named place (as defined by the US Census).

Non-Commute Transit Demand

The demographic data summarized in Table 3 were applied to a series of analytical techniques to provide estimates of the various types of transit demand. These estimates were then considered as a whole to develop overall estimates of total transit demand. An important source of information regarding demand generated by programs is the *Transit Cooperative Research Program (TCRP) Project A-3: Rural Transit Demand Estimation Techniques*. This study, completed by SG Associates, Inc., represents the latest comprehensive research into demand for transit service in rural areas and small communities (specifically, for counties with less than 50,000 population). Study documents present a series of formulae relating the number of participants in various types of programs with the observed actual demand for service, based upon a database of 185 transit agencies across the country. The TCRP analytical technique uses a "logit model" approach to the estimation of transit demand, similar to that commonly used in urban transportation models. This model incorporates an exponential equation that relates the quantity of service and the demographics of the area.

As with any other product or service, the demand for transit service is a function of the level of supply provided. To use the TCRP methodology to identify a feasible maximum demand, it is necessary to assume a high supply level, as measured in vehicle-miles of annual transit service per square mile of service area. For rural areas such as Box Elder County, a reasonable maximum level of service would be to serve every portion of the county with four round-trips of transit service daily, Monday through Friday. This equates to approximately 4,400 vehicle-miles of transit service per square mile per year.

Employing this service density to the population characteristics of Box Elder County yields the estimated non-commute, non-program transit demand presented in Table 4. As indicated, a total of 390,790 one-way passenger-trips would be generated, if services were available for all potential trips. Of this total, 279,220, 71 percent, are generated by elderly and/or disabled residents, while the remaining 111,570 are generated by the general public, including non-disabled youth.

Table 3: Demographic Characteristics

Area Description	Size (Sq Mi)	Total Popu-lation	Total House-holds	Youth (5-17)	Elderly (65+)	Mobility Limited	Below Poverty	0-Vehicle House-holds	Workers (1)
By Census Defined Place									
Bear River City	1.57	750	226	214	78	16	0	0	307
Brigham City	14.32	17,411	5,526	4,353	2,115	769	1,492	146	6,779
Corinne	3.65	621	190	167	58	13	54	8	262
Deweyville	6.44	278	98	68	34	11	15	0	101
Elwood	7.67	678	194	213	60	36	30	1	280
Fielding	0.44	448	139	125	41	18	4	4	204
Garland	1.77	1,943	588	530	167	83	133	14	734
Honeyville	11.74	1,214	358	341	136	62	77	10	479
Howell	35.55	221	68	62	18	5	17	0	88
Mantua	5.6	791	218	250	66	19	13	3	324
Perry	7.66	2,383	747	609	243	56	52	14	970
Plymouth	0.54	328	105	85	29	17	29	4	161
Portage	2.28	257	75	83	28	22	22	0	89
Riverside	6.72	678	196	210	69	17	104	6	270
Snowville	1.53	177	59	40	18	11	9	3	112
Tremonton	5.23	5,592	1,698	1,575	507	237	542	40	2,288
Willard	7.21	1,630	517	415	154	54	116	12	765
By Census Tract									
9601	6,094.15	2,712	782	824	213	98	191	17	1,065
9602	101.26	6,037	1,810	1,715	566	223	371	39	2,386
9603	14.02	6,223	1,876	1,778	563	268	559	40	2,590
9604	291.97	4,521	1,336	1,268	419	104	159	9	1,851
9605	107.21	4,567	1,474	1,134	499	210	283	66	1,899
9606	12.87	6,543	2,017	1,653	862	279	748	34	2,367
9607.01	1.53	4,396	1,335	1,175	558	167	310	34	1,667
9607.02	1.11	2,225	778	504	201	118	161	19	944
9608.01	86.68	3,191	998	834	311	96	180	15	1,440
9608.02	4.47	2,330	738	578	251	53	49	14	963
Total County	**6,715.27**	**42,745**	**13,144**	**11,463**	**4,443**	**1,616**	**3,011**	**287**	**17,172**

1. Number of residents working outside the home.
Source: 2000 Census.

Table 4: Estimate of Annual Transit Demand

	Non-Commute Demand (TCRP Methodology)							Commute Demand (by Resident Location)		
City/Tract	Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	TOTAL	% of Total	Estimated Daily Demand	Employment Demand	% of Total	Estimated Daily Demand
By City										
Bear River City	4,170	420	4,590	0	4,590	1%	18	4,605	2%	18
Brigham City	113,210	20,010	133,220	55,390	188,610	48%	740	101,685	39%	399
Corinne	3,090	340	3,430	2,000	5,430	1%	21	3,930	2%	15
Deweyville	1,820	290	2,110	560	2,670	1%	10	1,515	1%	6
Elwood	3,220	940	4,160	1,120	5,280	1%	21	4,200	2%	16
Fielding	2,290	480	2,770	150	2,920	1%	11	3,060	1%	12
Garland	8,920	2,160	11,080	4,930	16,010	4%	63	11,010	4%	43
Honeyville	7,270	1,610	8,880	2,860	11,740	3%	46	7,185	3%	28
Howell	960	130	1,090	630	1,720	0%	7	1,320	1%	5
Mantua	3,530	490	4,020	480	4,500	1%	18	4,860	2%	19
Perry	13,010	1,460	14,470	1,930	16,400	4%	64	14,550	6%	57
Plymouth	1,540	440	1,980	1,070	3,050	1%	12	2,415	1%	9
Portage	1,490	570	2,060	810	2,870	1%	11	1,335	1%	5
Riverside	3,700	440	4,140	3,860	8,000	2%	31	4,050	2%	16
Snowville	950	280	1,230	330	1,560	0%	6	1,680	1%	7
Tremonton	27,130	6,160	33,290	20,120	53,410	14%	209	34,320	13%	135
Willard	8,260	1,410	9,670	4,310	13,980	4%	55	11,475	4%	45
By Census Tract										
9601	11,390	2,550	13,940	7,090	21,030	5%	82	15,975	6%	63
9602	30,280	5,800	36,080	13,770	49,850	13%	195	35,790	14%	140
9603	30,080	6,960	37,040	20,720	57,760	15%	227	38,850	15%	152
9604	22,410	2,700	25,110	5,900	31,010	8%	122	27,765	11%	109
9605	26,700	5,460	32,160	10,500	42,660	11%	167	28,485	11%	112
9606	46,190	7,260	53,450	27,800	81,250	21%	319	35,505	14%	139
9607.01	29,420	4,290	33,710	11,340	45,050	12%	177	25,005	10%	98
9607.02	10,680	3,050	13,730	5,940	19,670	5%	77	14,160	5%	56
9608.01	16,630	2,500	19,130	6,680	25,810	7%	101	21,600	8%	85
9608.02	13,490	1,380	14,870	1,830	16,700	4%	65	14,445	6%	57
Total County	**237,270**	**41,950**	**279,220**	**111,570**	**390,790**	**100%**	**1,533**	**257,580**	**100%**	**1,010**
East Valley	9,090	1,900	10,990	3,420	14,410	4%	57	8,700	3%	34
West Valley	10,480	1,700	12,180	3,120	15,300	4%	60	12,735	5%	50

Employee Transit Demand

Nationally, 1.8 to 2.5 percent of a community's employees typically use transit where it is available. However, several factors indicate a relatively high potential transit "mode split" in Box Elder County, including the relatively long commute distances, the concentration of employment in specific geographic areas, as well as the relatively high transit use in nearby counties currently provided with public transit services. A reasonable work transit mode split figure in Box Elder County is estimated to equal 3.0 percent. Typically, each employee makes two trips approximately 250 days per year. As also presented in Table 4 above, this equates to 257,580 annual one-way transit trips. Note that this figure reflects commute trips by Box Elder County residents only, and does not consider transit demand by residents of other counties working in Box Elder County.

As discussed previously, US Census data for 2000 also provides useful information on the inter-county commute pattern. As shown in Table 5, the prevalent pattern is for commute trips that stay within Box Elder County: 72.5 percent of persons employed within Box Elder County also live within Box Elder County, while 74.3 percent of employed persons living in Box Elder County work in Box Elder County. For residents commuting out of the county, the large proportion (roughly 3,600 residents) commutes south along the Wasatch Front. There is also a substantial commute pattern into Box Elder County from the south, with roughly 2,000 workers commuting northward into the county. Between Box Elder and Cache Counties, substantially more employees commute from Cache County to jobs in Box Elder (2,383) than vice versa (631).

Table 5: Inter-County Commute Patterns

County of Residence for Box Elder Workers		**#**	**%**
	Box Elder	13,570	72.5%
	Cache	2,383	12.7%
	Weber	1,671	8.9%
	Oneida County, ID	419	2.2%
	Davis	313	1.7%
	Other	373	2.0%
		18,729	
County of Employment for Box Elder Residents			
	Box Elder	13,570	74.3%
	Weber	2,529	13.8%
	Davis	660	3.6%
	Cache	631	3.5%
	Salt Lake	401	2.2%
	Other	239	1.3%
		18,030	

Source: 2000 Census

The availability of specific employment data from many of the major employers in Box Elder County allows a more detailed estimate of potential transit demand by location, shift time, day of week, and commute corridor. A summary of the data received from the major employers, as well as estimates of potential transit demand are included in Appendix A. In addition, a summary of potential transit demand by shift time and employer and a summary of potential daily transit demand by employer and by employee county of residence are also given there.

Summary and Discussion of Transit Demand

In total, the evaluation of potential transit demand in Box Elder County indicates the following:

- Residents of Box Elder County could potentially generate roughly 650,000 annual one-way transit passenger-trips. In addition, potential transit ridership could be generated by residents of other counties commuting to jobs in Box Elder County.
- The greatest potential demand, roughly 43 percent of the total, is generated by elderly/disabled residents of the County, followed by commute trips, about 40 percent.
- Of non-commute transit demand, the highest proportion, 48 percent, is generated by Brigham City residents, followed by residents of Tremonton at 14 percent, Perry at 4 percent, and Garland at 4 percent.
- The preponderance of commute demand is for trips originating and ending in Box Elder County.
- Of the total commute transit trip demand, the highest proportion, 39 percent, is generated by Brigham City residents, followed by residents of Tremonton at 13 percent, Perry at 6 percent, and Garland at 4 percent.
- There is a substantial demand for commute transit service into Box Elder County both from the south and from Cache County.
- Many of the commuters to Box Elder's major employers have shifts that start relatively early in the morning (5:45 or 6:00am), with a return commute time in the mid-afternoon.
- Considering the residence location of Nucor Steel employees, it is very doubtful that an effective public transit program could serve this employer.
- Given that much of the transit demand is concentrated in the Brigham City and Tremonton/Garland areas, a key consideration is the relatively high transit demand for various routes connecting these areas. There are two general route corridors: a "west valley" corridor including Corinne, Bear River City and Elwood, and an "east valley" corridor including Deweyville and Honeyville. As shown in the bottom portion of Table 4, non-commute demand is relatively equal between these two corridors, with 14,410 transit trips per year in the east corridor versus 15,300 in the west corridor. Commuter demand generated by residents, however, is substantially higher in the west corridor with 12,735 trips per year than in the east corridor, 8,700 trips per year.

6. Transit Operational Cost Model

To provide planning-level estimates of ongoing costs associated with public transit services, it is necessary to develop a "cost model." This cost model reflects those factors that impact ongoing operational and administrative costs, including salaries and benefits, fuel, vehicle maintenance, and other recurring costs, but excluding capital costs associated with major purchases. Each cost item is allocated to that quantity – vehicle service hour, vehicle service mile, or fixed costs upon which it is most dependent. Fuel costs, for example, are allocated to vehicle service miles, while driver salary and benefits are allocated to vehicle service hours. Fixed costs reflect administrative and facility costs that do not vary depending upon the size of the transit operation (within a reasonable range).

Cost factors were drawn largely from the existing unit costs associated with Logan Transit District/Cache Valley Transit District operations, as well as with typical administrative costs for smaller, more rural transit programs. These cost factors are considered to be appropriate, given the nearby location and general consistency with costs associated with other transit services of similar scope in the western US. As LTD/CVTD transit operations are provided under contract with a private service contractor, much of these costs are associated with the 'Transportation

Services' line item. This cost model therefore assumes that transit services are provided through a private contractor rather than through direct public sector employees, and that an administrative staff of approximately 2.5 full-time equivalent positions is appropriate for administration, ongoing marketing efforts, and contract monitoring.

As shown in Table 6, the resulting cost model is as follows:

Annual Operating Cost = $21.87 x annual vehicle service hours +
$0.91 x annual vehicle service miles +
$350,500 in annual fixed costs

Table 6: Operating/Administrative Cost Model

	Fixed Costs	Mileage-Related Costs per Vehicle Service-Mile	Hourly-Related Costs per Vehicle Service-Hour
Administrative Employee Salary & Benefits	$ 150,000		
Subscriptions & Memberships	$ 2,500		
Ads & Publications	$ 6,000		
Travel & Training	$ 4,000		
Office Supplies & Postage	$ 4,000		
Equip -- Oper Supplies & Maintenance	$ 5,000		
Utilities	$ 20,000		
Telephone & Internet Expenses	$ 2,000		
Professional & Technical Services	$ 10,000		
IT Services	$ 8,000		
Insurance & Surety Bonds	$ 10,000		
Legal Services	$ 4,000		
Rent of Property & Equipment	$ 1,000		
Buildings	$ 10,000		
Equipment	$ 2,000		
Transportation Services (Contract)	$ 112,000	$ 0.22	$ 21.87
Fuel		$ 0.32	
Parts		$ 0.28	
Supplies		$ 0.02	
Towing		$ 0.01	
Tires		$ 0.05	
Oil, Grease & Fluids		$ 0.01	
Total	**$ 350,500**	**$ 0.91**	**$ 21.87**

This equation can be used to estimate the cost of individual service options, providing a much more accurate estimate than a simple cost per mile or cost per hour factor. It should be noted that both the vehicle service hour factor as well as the vehicle service mile factor needs to be considered in any cost estimate. It should also be kept in mind that this equation provides a planning-level estimate of ongoing annual costs only. In addition to these operating costs, an annual capital cost of $150,000 was assumed for future funding scenarios later in this document.

Fare Assumptions

It is assumed for purposes of this analysis that a passenger fare would be charged for public transit services. While the transit services in the Cache Valley are a notable exception, the large majority of public transit programs in the United States charge fares, both in order to generate a substantial portion of program revenues, as well as to provide a means of managing demand for service.

A reasonably low full adult fare for a short-distance local trip such as for service within Brigham City is $1.00. In reality, many transit systems across the country currently charge fares in excess of $1.00; as an example, full fare for UTA bus service is currently $1.35. Driven by federal requirements and the desire to better serve the community, most systems provide half-fare service (such as $0.50 fare) to elderly, disabled and youth riders. In addition, a discount of at least 10 percent is typically provided for multi-ride fare options, such as 10-ride punch passes or monthly passes.

Transit services serving longer corridors such as commute services often charge higher fares for longer trips. However, the trend in the transit industry is to simplify fare systems, as a way to make the service easier and less expensive to use. It is assumed for purposes of this analysis that a single fare structure would be applied to all trips regardless of trip distance. Table 7 shows the fare structure that is recommended and used in this analysis:

Table 7: Fare Recommendations and Assumptions

Type of Fare	Cost
Full Adult (1-way ride)	$1.00
Elderly (65+), Disabled, Youth (5-16)	$0.50
Adult 10-Ride Punch Pass	$9.00
Elderly / Disabled / Youth 10-Ride Punch Pass	$4.50
Adult Monthly Pass	$39.00
Elderly / Disabled / Youth Monthly Pass	$19.00

For services offering deviation to locations near the route, a flat $1.00 additional fee per deviation is recommended. In addition, a fare agreement would preferably be negotiated between the Box Elder transit service and UTA, allowing free transfers from UTA and the new service and a transfer fee between the new service and UTA equivalent to the difference in fares between the two services.

7. Box Elder County Transit Service Alternatives

In addition to the information discussed above, the evaluation of service alternatives is based on the following assumptions:

- The transit service operational base is assumed to be located in the Brigham City area. Even if a service begins or ends in the same community as the transit operations facility, “deadhead” time and mileage is required for driver check-in and check-out, and to travel to and from the beginning and end of the route. A minimum of 30 minutes of deadhead time and six miles of deadhead travel is assumed, with additional deadhead associated with those runs starting and/or ending in another community.
- New transit services typically do not reach their full ridership potential until the third year of service. To provide a picture of how the various alternatives would operate in the

long-term, no reductions in ridership are included in this analysis to reflect this initial reduction in ridership. In developing year-by-year financial plans, however, this effect should be considered.
- Service holidays are assumed for seven major holidays per year.

There are 12 separate alternatives discussed here that cover six different routes within Box Elder County. Those six routes include:

A. Service between Tremonton/Garland and Brigham City
B. Service between Cache Valley and Brigham City
C. Service between Brigham City and Thiokol
D. Service between Cache Valley/Tremonton/Thiokol
E. Local service within Brigham City
F. Weekly service between Portage and Brigham City

A. Service between Tremonton and Brigham City – Figures 7 and 8

1. Commute-only service between Tremonton/Garland and Brigham City

One relatively straightforward transit service option would be to establish a public transit program designed to best serve commuters traveling within Box Elder County, as well as those connecting with UTA service in Brigham City. A recommended route and example schedule for this service is presented in Figure 7 and Table 8, respectively, and reflects the following considerations:

- Experience with commute programs around the nation indicates that a minimum of two AM departures and two PM departures should be provided in order to give travelers at least a minimum of choice in travel times.
- In light of the commuter travel demand generated by residents as well as the presence of major employers (such as the Wal-Mart Distribution Center in Corinne and the Vulcraft plant in west Brigham City); it is preferable to concentrate a limited service in the west valley corridor.
- Schedules were developed to best meet the shift change times for the major employers along the route, as well as the UTA service times in Brigham City for the most productive runs of UTA Route 630. Average passenger loads on Route 630 runs are presented in Appendix A.
- In particular, the schedule reflects the fact that there is substantial demand in both directions along the corridor at roughly the same times, driven by the presence of major employers at both ends of the corridor. This requires that two buses be operated to meet key shift times.

Figure 7: Commute-only Service between Tremonton/Garland and Brigham City

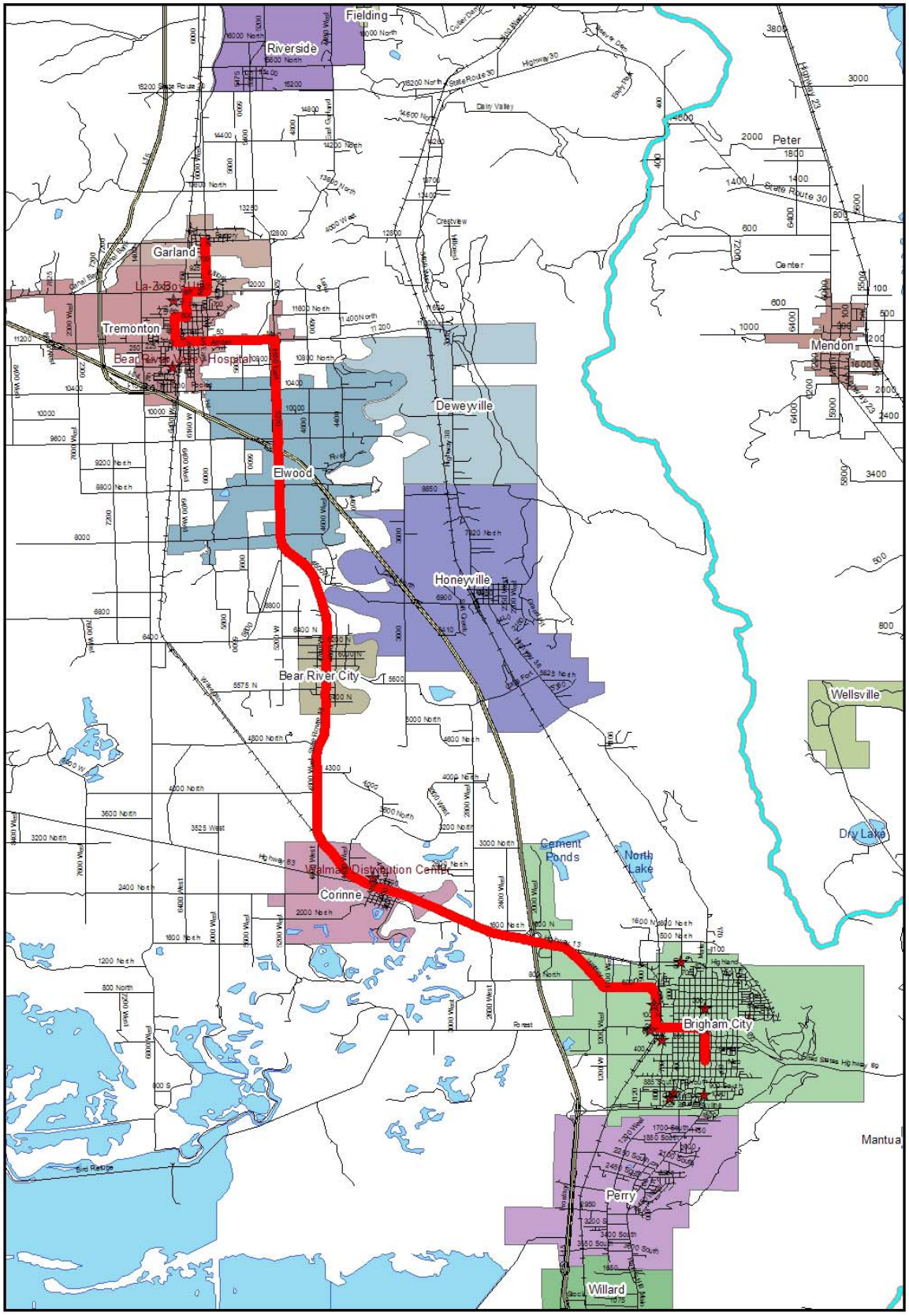


Table 8: Tremonton/Garland -- Brigham City Commute Service Proposed Schedule

Southbound Runs										
Dep	Garland	-	-	5:45am	**6:20am**	7:20am	-	3:30pm	-	**5:00pm**
Dep	Tremonton	-	-	5:52am	**6:27am**	7:27am	-	3:37pm	-	**5:07pm**
Dep	Elwood	-	-	5:58am	**6:33am**	7:33am	-	3:43pm	-	**5:13pm**
Dep	Bear River City	-	-	6:01am	**6:36am**	7:36am	-	3:46pm	-	**5:16pm**
Dep	Corinne	-	-	6:08am	**6:43am**	7:43am	-	3:53pm	-	**5:23pm**
Dep	Vulcraft	-	-	6:13am	**6:48am**	7:48am	-	3:58pm	-	**5:28pm**
Dep	Autoliv	-	-	6:17am	**6:52am**	7:52am	-	4:02pm	-	**5:32pm**
Dep	County & City Offices	-	-	6:22am	**6:57am**	7:57am	-	4:07pm	-	**5:37pm**
Dep	South Main St	-	-	6:26am	**7:01am**	8:01am	-	4:11pm	-	**5:41pm**
Arr	Community Hospital	-	-	6:29am	**7:04am**	8:04am	-	4:14pm	-	**5:44pm**
Northbound Runs										
Dep	Community Hospital	4:35am	**5:20am**	6:35am	**7:20am**	-	2:00pm	**4:00pm**	4:45pm	**6:00pm**
Dep	South Main St	4:38am	**5:23am**	6:38am	**7:23am**	-	2:03pm	**4:03pm**	4:48pm	**6:03pm**
Dep	County & City Offices	4:42am	**5:27am**	6:42am	**7:27am**	-	2:07pm	**4:07pm**	4:52pm	**6:07pm**
Dep	Autoliv	4:47am	**5:32am**	6:47am	**7:32am**	-	2:12pm	**4:12pm**	4:57pm	**6:12pm**
Dep	Vulcraft	4:51am	**5:36am**	6:51am	**7:36am**	-	2:16pm	**4:16pm**	5:01pm	**6:16pm**
Dep	Corinne	4:56am	**5:41am**	6:56am	**7:41am**	-	2:21pm	**4:21pm**	5:06pm	**6:21pm**
Dep	Bear River City	5:03am	**5:48am**	7:03am	**7:48am**	-	2:28pm	**4:28pm**	5:13pm	**6:28pm**
Dep	Elwood	5:06am	**5:51am**	7:06am	**7:51am**	-	2:31pm	**4:31pm**	5:16pm	**6:31pm**
Dep	Tremonton	5:12am	**5:57am**	7:12am	**7:57am**	-	2:37pm	**4:37pm**	5:22pm	**6:37pm**
Arr	Garland	5:19am	**6:04am**	7:19am	**8:04am**	-	2:44pm	**4:44pm**	5:29pm	**6:44pm**

Regular type = Bus 1, **Bold type = Bus 2**.

As indicated in Table 8, four runs northbound and three runs southbound would be operated during the morning commute period between 4:35am and 8:04am, while four runs would be operated northbound and two runs southbound in the afternoon commute period between 2:00pm and 6:44pm. The early morning northbound run is provided specifically to meet the 5:00am shift start time at the Wal-mart Distribution Center. In the long run, additional runs to serve the Deweyville and Honeyville areas may be warranted. However, it is not recommended that service levels on the west valley route be reduced to provide east valley runs.

Major stops along this route would consist of the following:

- Downtown Garland
- La-Z-Boy
- Bear River Valley Hospital
- Downtown Tremonton
- Elwood
- Bear River City
- Walmart Distribution Center
- Downtown Corinne
- Vulcraft
- Autoliv (Brigham City)
- Downtown Brigham City
- USU Brigham City
- Walmart
- Brigham Community Hospital

Running time would be available to provide front-door service to some of the major employers.

This alternative would result in the operation of approximately 4,335 total vehicle-hours and 106,845 vehicle-miles per year considering both in-service and out-of-service or "deadhead" travel. A summary of ridership, vehicle-hours, and vehicle-miles is given later in this document. Applying the cost model factors discussed previously, the annual marginal operation cost associated with this service alternative, over and above any fixed administrative cost and excluding capital costs, would be roughly $192,000.

The ridership estimate for this service considers both persons commuting within Box Elder County, as well as person transferring to and from the UTA service in Brigham City. Internal commuting ridership is based upon the evaluation of total employment ridership discussed above, factored downward to reflect the number of workers living in the service area, the proportion of employment in the service area, the span of service, the frequency of service, and the capacity of the service. Riders carried on the new service that transfer to and from the UTA service is estimated based upon the observed level of commuters carried on the UTA routes, as well as the relative number of employed persons in the new service area of the potential route versus the existing UTA route service area. Total annual ridership on the service is estimated to equal 62,400 one-way passenger-trips per year, of which 14,500 will transfer to/from the UTA service and the remaining 47,900 will commute within the new route's service area.

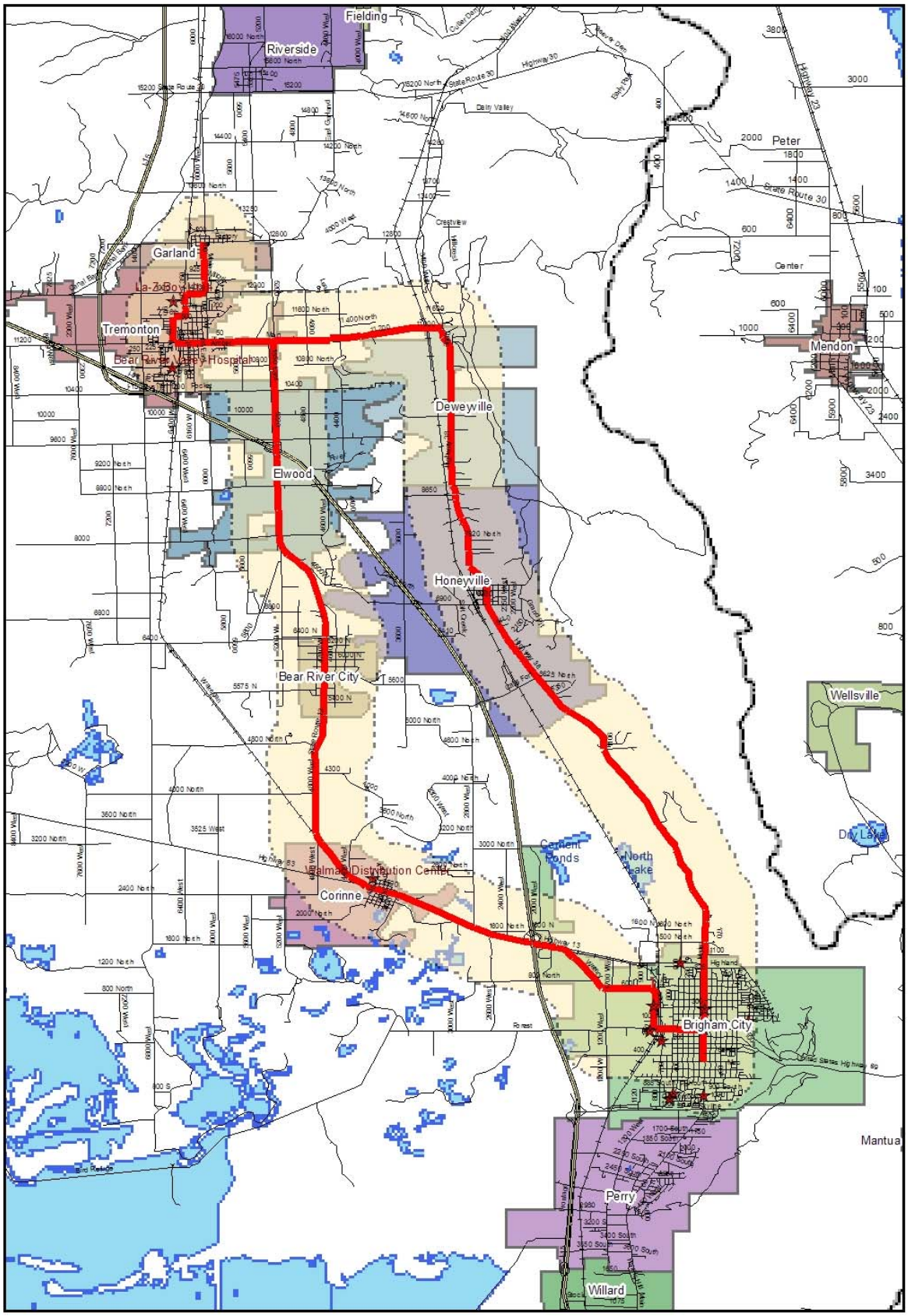
Given the discounts provided to elderly/disabled/youth as well as to multi-ride and monthly pass holders and the proportion of riders expected to ride at reduced fares, a reasonable average fare per passenger for this service is $0.80 per one-way ride. This service would therefore generate roughly $49,900 per year in passenger revenues. Subtracting this revenue from the total operating cost discussed above, this alternative would require approximately $142,100 per year in operating subsidy.

2. All-day 1-Bus Flex-route Service in the Tremonton/Garland – Brigham City Corridor on Weekdays

A reasonable "next step" in the provision of local Box Elder transit services would be to provide service throughout the weekday, using a single vehicle operating on a roughly 2-hour round-trip schedule. Under this alternative, one of the two commute buses would continue to operate throughout the mid-day. During the non-commute runs, this bus would operate as a "flex route," deviating up to 3/4 mile from the routes to serve ride requests. Requests can be made over the phone, directly of the driver, or through standing requests.

As the demand for non-commute transit service is more evenly split between the east valley and west valley areas as discussed above, runs could be operated on both sides of the valley. As shown in Figure 8, the west valley route would be identical to the commuter route, while the east valley route would divert from the commute route to travel along State Routes 38 and 102 to serve Honeyville and Deweyville.

Figure 8: All-Day Service between Tremonton/Garland – Brigham City



In addition to the commute runs shown in Table 8, this alternative could provide the runs shown in Table 9.

Table 9: Tremonton/Garland -- Brigham City All-Day 1-Bus Flex-Route Service Proposed Schedule

Depart	Time	Route	Arrive	Time
Brigham City	8:00am	East Valley	Garland	8:50am
Garland	9:00am	East Valley	Brigham City	9:50am
Brigham City	10:00am	West Valley	Garland	10:50am
Garland	11:00am	West Valley	Brigham City	11:50am
Brigham City	Noon	East Valley	Garland	12:50pm
Garland	1:00pm	East Valley	Brigham City	1:50pm
Brigham City	2:00pm	West Valley	Garland	2:50pm
Garland	3:00pm	West Valley	Brigham City	3:50pm

Together with the commute runs, these additional runs would provide multiple trip opportunities for residents of all the communities along both the west and east valley routes to make trips to both the Tremonton/Garland area on the north as well as to the Brigham City and UTA connections beyond to the south. As shown in Table 15 later in this document, this service would require 2,040 vehicle-hours and 61,200 vehicle-miles per year, and incur $100,300 in annual operating costs.

Ridership for this alternative can be estimated based upon the total non-commute demand within the service area, factored downward to reflect the limitations on the span of service, the frequency of service, and the proportion of population within a reasonable walk distance of the route. Total ridership is estimated to equal 39,600 one-way passenger-trips per year. Note that some of this ridership would occur on the “commute” runs rather than the additional mid-day runs.

A reasonable average fare for this service considering the expected proportion of discounted fare passengers would be roughly $0.65, indicating that roughly $25,700 in farebox revenue would be generated each year. Annual subsidy requirements would therefore be approximately $74,600 per year.

3. All-day 2-Bus Flex-route Service in the Tremonton – Brigham City Corridor on Weekdays

Figure 8 (above) also reflects the route map for this alternative. The ridership forecasted for the previous alternative would strain the capacity of a single bus on peak runs. To better accommodate the ridership and provide a more consistent service, it may be warranted to also operate the second commute bus through the mid-day period. Along with the commute runs and the runs presented under the previous alternative, this alternative would result in the runs shown in Table 10.

Table 10: Tremonton/Garland -- Brigham City Commute and 2-Bus Full-Day Proposed Schedule

West Valley			
Southbound		**Northbound**	
Depart Garland	5:45am	Depart Brigham City	5:20am
	6:20am		6:35am
	7:20am		7:20am
	9:00am		9:00am
	11:00am		11:00am
	1:00pm		1:00pm
	3:30pm		2:00pm
	5:00pm		4:00pm
			4:45pm
			6:00pm
East Valley			
Southbound		**Northbound**	
Depart Garland	8:00am	Depart Brigham City	8:00am
	10:00am		10:00am
	Noon		Noon
	2:00pm		2:00pm

Together, the two routes would provide effective hourly service in both directions in both the Tremonton/Garland area as well as in the Brigham City area. This alternative would incur operating costs of $188,100, and estimated to generate 71,100 passenger-trips per year. Subtracting $46,200 in farebox revenues, $141,900 in subsidy would be required each year.

4. Saturday 1-Bus Flex-route Service in the Tremonton – Brigham City Corridor

Again, the route for this alternative is the same as is shown in Figure 8. Reflecting the relatively low demand for service, most public transit services in rural areas and smaller cities operate a reduced level of transit service on Saturdays and no service on Sundays. A reasonable alternative for Box Elder County would be to operate a single bus between roughly 8:00 AM and 4:00 PM on Saturdays, with runs alternating between the East Valley and West Valley routes.

Table 11: Tremonton/Garland -- Brigham City Saturday Flex-Route Service Proposed Schedule

Depart	Time	Route	Arrive	Time
Brigham City	8:00am	West Valley	Garland	8:50am
Garland	9:00am	West Valley	Brigham City	9:50am
Brigham City	10:00am	East Valley	Garland	10:50am
Garland	11:00am	East Valley	Brigham City	11:50am
Brigham City	Noon	West Valley	Garland	12:50pm
Garland	1:00pm	West Valley	Brigham City	1:50pm
Brigham City	2:00pm	East Valley	Garland	2:50pm
Garland	3:00pm	East Valley	Brigham City	3:50pm

This service would require $20,600 in operating funds per year and is expected to serve roughly 7,700 passenger-trips per year. Subtracting $5,000 in annual fare revenue, total subsidy requirement would equal $15,600 per year.

B. Service between Cache Valley and Brigham City – Figure 9

5. Brigham City – Logan Commute Service

Another option would be to provide a commute transit service between Brigham City and Logan. A reasonable route would start at the Logan Transit Center, serve Wellsville and Mantua, and serve major stops in Brigham City such as the USU facility, Walmart, Brigham Community Hospital, County Offices, and Autoliv.

To best meet shift times and UTA services, two buses would need to be operated on a schedule recommended in Table 12.

Table 12: Brigham City – Logan Commute Service
Proposed Schedule

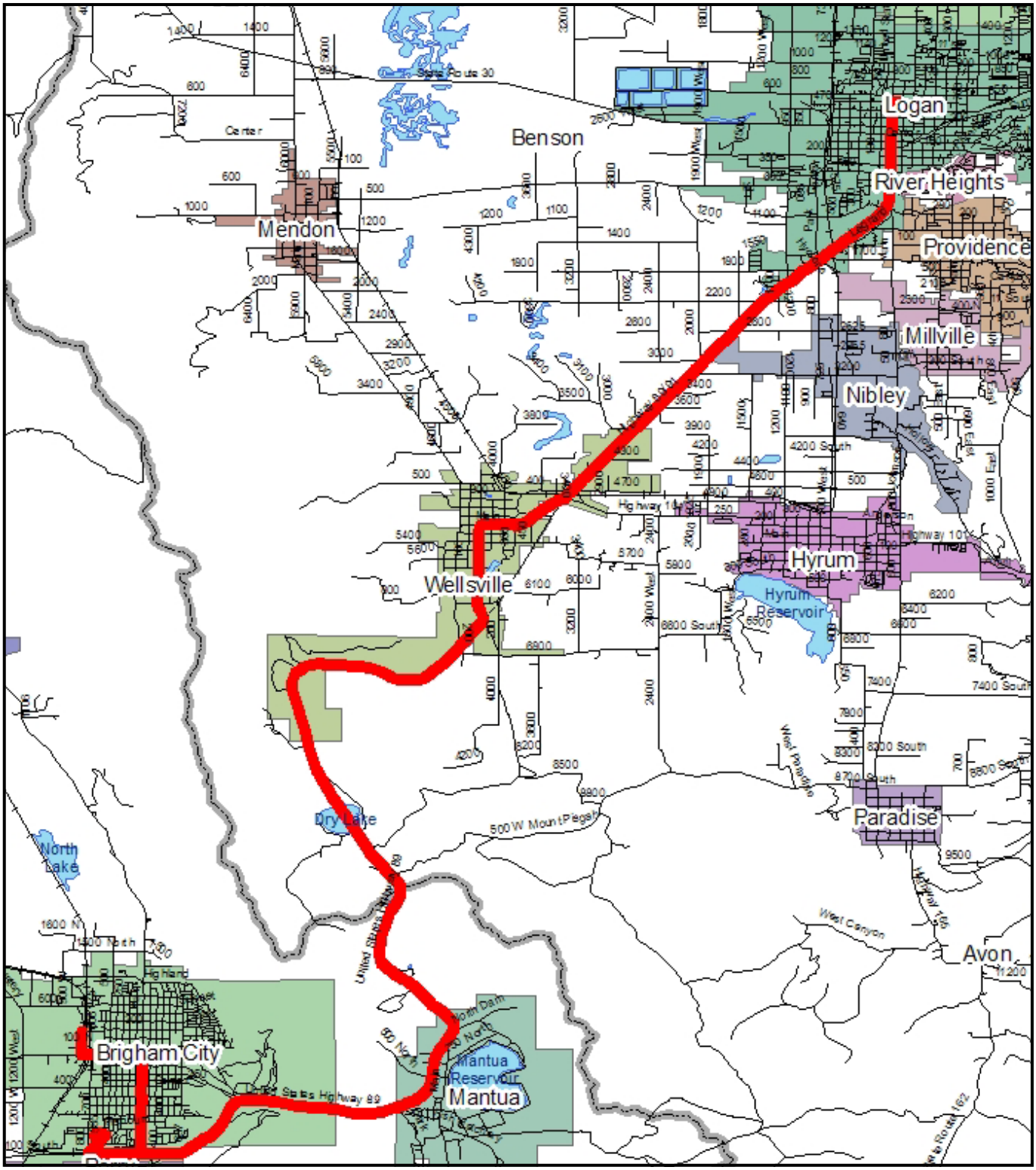
Depart Logan	Arrive Brigham City
5:30am	6:30am
6:00am	7:00am
4:00pm	5:00pm
5:00pm	6:00pm
Depart Brigham City	**Arrive Logan**
6:30am	7:30am
7:00am	8:00am
5:00pm	6:00pm
6:00pm	7:00pm

This service would incur an operating cost of roughly $108,100 per year, assuming that no dead-head runs are required. In turn, this infers that service would begin and end in Logan. There is a possibility of coordinating this service with Logan Transit District and Cache Valley Transit District who have been considering a similar route for some time. There would likely be cost savings in working with them to provide the service most efficiently.

Ridership on this service would be generated by four major categories of passengers:

- Cache Valley residents working in Box Elder County or beyond – Based on the demographic data, expected mode split, and proportion of Box Elder employment in the Brigham City, and factored down to reflect the limited service schedule, commuting into Brigham City is forecast to generate roughly 14,900 passenger-trips per year.
- Box Elder residents working in Cache County – Reflecting the lower number of persons commuting in the opposite direction, Box Elder residents commuting into Cache County are forecast to generate roughly 1,800 passenger-trips per year.
- USU students – USU indicates that 789 Box Elder County residents take classes in Logan, while 398 Logan-area residents take classes in Brigham City. Factored to reflect the service area and span of service of this alternative, and assuming a relatively high transit mode split, this “market segment” is forecast to generate 6,400 passenger-trips per year: 2,900 to the Brigham City USU campus, and 3,500 to the Logan USU campus.

Figure 9: Cache Valley to Brigham City Service



- Intercity travelers – As Greyhound service to Logan was recently terminated, a Logan – Brigham City service would also serve to connect Cache Valley with the intercity bus network. Based on an analysis presented in the Cache Valley Short Range Transit Plan, this category would generate roughly 3,600 passenger-trips per year.

In addition, a smaller number of passenger-trips can be expected to be generated by residents of both counties traveling for medical or other personal business reasons. In total, annual ridership on this service is forecast to equal roughly 27,000 passenger-trips per year. Note that this figure does not include potential ridership within Cache County such as between Wellsville and Logan. This ridership would generate roughly $21,600 in passenger revenues, leaving an annual operating subsidy of roughly $87,100.

6. Mid-Day Logan – Brigham City – Logan Run

Once commute-period service is provided, the convenience of Brigham City – Logan service for non-commute purposes could be substantially expanded through the provision of a single mid-day run. By providing a southbound departure from Logan around 11:00am and a northbound departure from Brigham City around 12:00 Noon, passengers such as students, intercity travelers, and shoppers could make half-day trips in either direction.

This service would incur an additional annual operating cost of roughly $29,300 per year. Considering all potential transit "markets," it would increase ridership on the corridor by roughly 7,400 passenger-trips annually. Subtracting an estimated $5,600 in passenger fares, this additional run would require an operating subsidy of $23,700 per year.

7. All Day + Commute Brigham City – Logan Service

Under this alternative, the commute-period service discussed above would be augmented by operating a single vehicle on a two-hour round-trip through the mid-day period, as well as during the evening hours. In total, under this alternative the runs shown in Table 13 would be operated each weekday.

This schedule is designed to best meet commute times as well as USU class schedules. It would require two buses, and the operation of 5,546 vehicle-hours and 156,060 vehicle-miles per year, resulting in a total operating cost of $263,300 annually.

Ridership for this service is estimated to equal 46,200 passenger-trips per year, which is an increase of 19,200 trips over the commute-only service discussed above. Subtracting $34,700 in operating costs, this alternative would require a total of $228,600 in annual subsidy.

Table 13: Brigham City -- Logan Commute + All Day Service
Proposed Schedule

Depart Logan	Arrive Brigham City
5:30am	6:30am
6:00am	7:00am
8:00am	9:00am
10:00am	11:00am
12:00 noon	1:00pm
2:00pm	3:00pm
4:00pm	5:00pm
5:00pm	6:00pm
7:00pm	8:00pm
9:30pm	10:30pm
Depart Brigham City	**Arrive Logan**
6:30am	7:30am
7:00am	8:00am
9:00am	10:00am
11:00am	12:00noon
1:00pm	2:00pm
3:00pm	4:00pm
5:00pm	6:00pm
6:00pm	7:00pm
8:00pm	9:00pm
10:45pm	11:45pm

C. Service between Brigham City and Thiokol – Figure 10

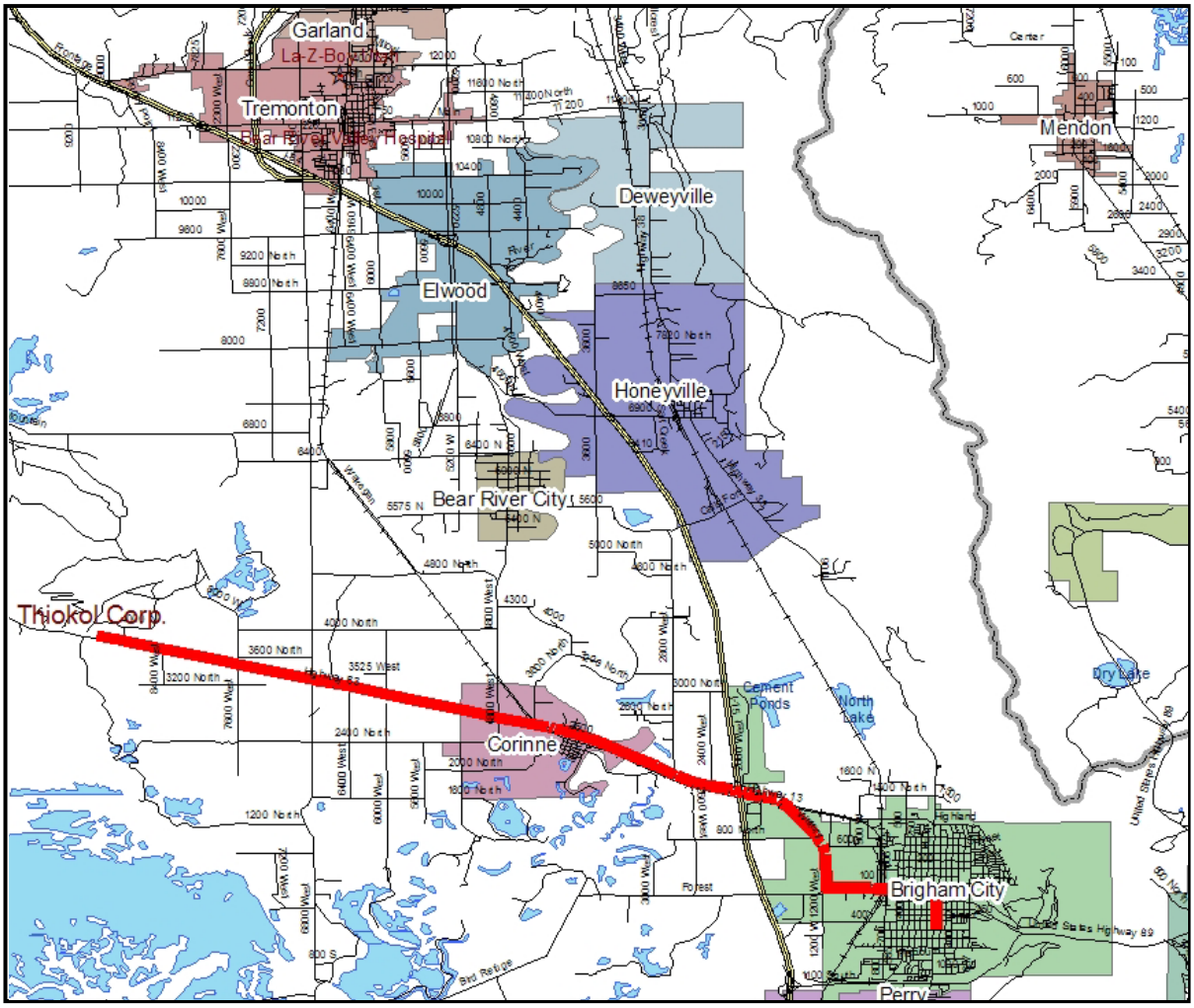
8. Brigham City – Thiokol Commute Service

A major Box Elder employer not served by the alternatives discussed above is the Thiokol plant west of Corinne which employs 2,960 persons. One potential means of serving this site would be to operate a commute service between Brigham City and the facility site. In particular, this service could be designed to serve the 2,835 "non-shift" workers who work from 7:00am to 3:30pm each weekday. One bus would be operated, leaving Brigham City around 6:00am, and leaving from the facility around 3:45pm. A stop would also be made in each direction in Corinne. This route is shown in Figure 10.

An annual operating cost of $42,300 would be incurred, assuming that transit drivers return "deadhead" to Brigham City after the morning run (and vice versa). Note that costs could be cut roughly in half if a Thiokol employee drives the vehicle as a part-time transit employee, thereby avoiding the need for the expensive deadhead return trips.

While specific information on the resident location of Thiokol employees is not available, estimates can be made based on Census information regarding the proportion of Box Elder employees living in Box Elder County and the proportion of total employed persons living in each community. In addition, a relatively high transit mode split can be assumed, due to the direct and convenient nature of the service. A total annual ridership of 19,000 passenger-trips per year is estimated. This is equivalent to an average of 37 riders per one-way bus trip, just within the capacity of a typical 40-foot transit coach.

Figure 10: Brigham City to Thiokol Commute Service



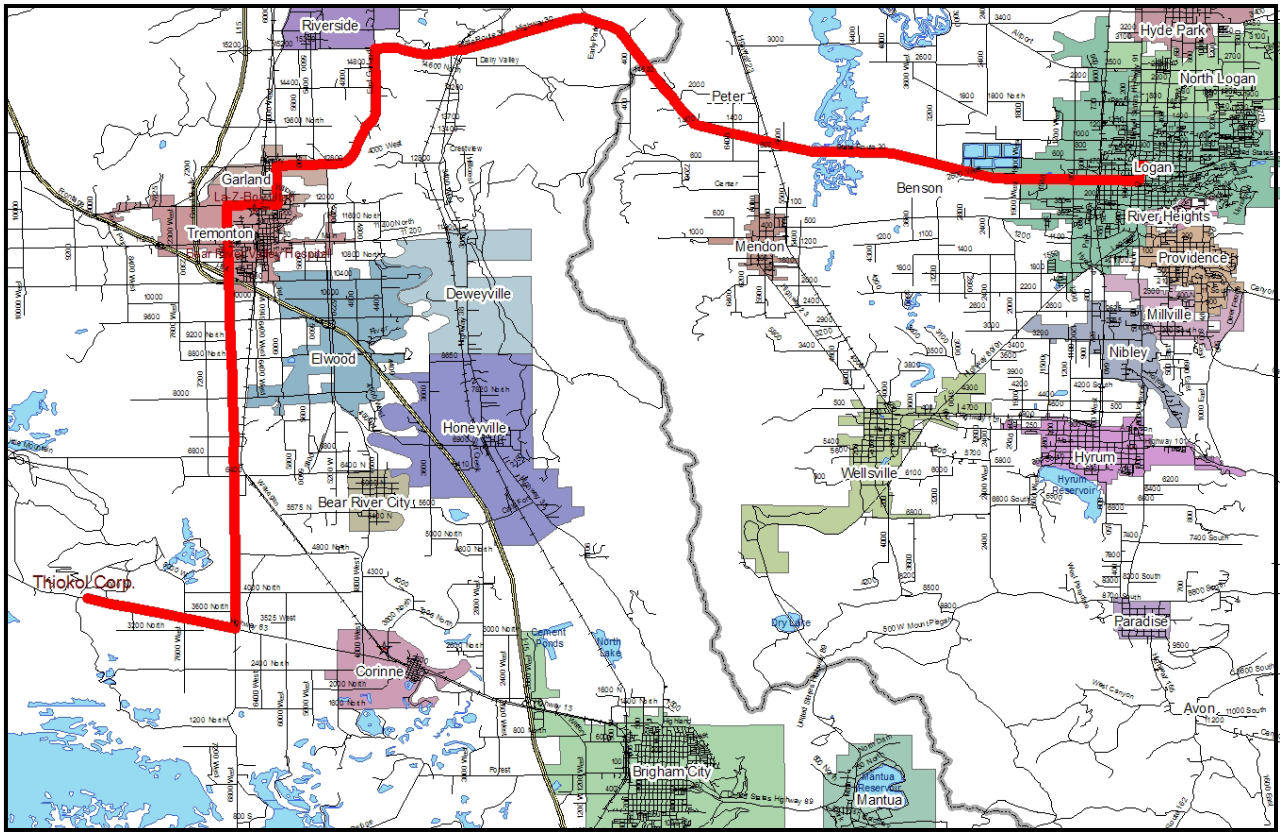
Due to the difference in shift times, this service would not serve the Autoliv Promontory plant, nor would it serve the other shift work times at the Thiokol plant. Demand for these different shift times would not be sufficient to warrant bus service. This service would also not accommodate the shift times of the Wal-mart Distribution Center, which instead could be served by the Tremonton – Brigham City commute service.

D. Service between Logan/Tremonton/Thiokol – Figure 11

9. Logan – Tremonton – Thiokol Commute Service

Another option to serve employee trips to the Thiokol plant would be to operate a service from Logan. As shown in Figure 11, this route would travel generally via State Routes 30, 504 and 82 between Logan and Garland, and use Main Street, 600 North, 1000 West/6600 West and State Route 83 to access the Thiokol entrance. This route would also serve persons commuting from Logan to Garland/Tremonton area employers, as well as Garland/Tremonton residents working at Thiokol.

Figure 11: Logan/Tremonton/Thiokol Commute Service



To meet the Thiokol work times, the proposed schedule would be as shown in Table 14.

Table 14: Logan/Tremonton/Thiokol Commute Service
Proposed Schedule

Depart Logan	5:35 AM
Depart Tremonton	6:15 AM
Arrive Thiokol	6:45 AM
Depart Thiokol	3:45 PM
Depart Tremonton	4:15 PM
Arrive Logan	4:55 PM

Unfortunately, this schedule does not meet the 6:00am shift start time at La-Z-Boy, and the relatively small potential demand for this employer indicates that overall ridership would be less if the schedule was shifted to meet this start time.

Total cost of this alternative would be $74,800 per year. Again, costs could be cut roughly in half if a Thiokol employee drives the vehicle as a part-time transit employee, thereby avoiding the need for the expensive deadhead return trips.

Ridership to the Thiokol plant is estimated to be about 8,300 one-way trips generated by Garland/Tremonton residents and 7,500 generated by Cache County residents. Including a

minor amount of ridership between Logan and Garland/Tremonton, total ridership for this service is estimated to equal 16,300 trips per year. Subtracting $13,000 in passenger revenues, annual operating subsidy needs would equal $61,800.

E. Local service within Brigham City – Figure 12

10. Brigham City Local Route – Weekday Service

A local transit route serving Brigham City should be designed based on the following strategies:

- A consistent "clock" headway should be provided with service no less frequent than once an hour.
- A maximum feasible travel speed is 12 to 15 miles per hour.
- Very large one-way loops should be avoided, as these require passengers to travel long distances out of direction on one end of their trip or the other.
- Major transit trip generates such as shopping, school, higher education, employment sites, and medical facilities should be served as directly as possible.

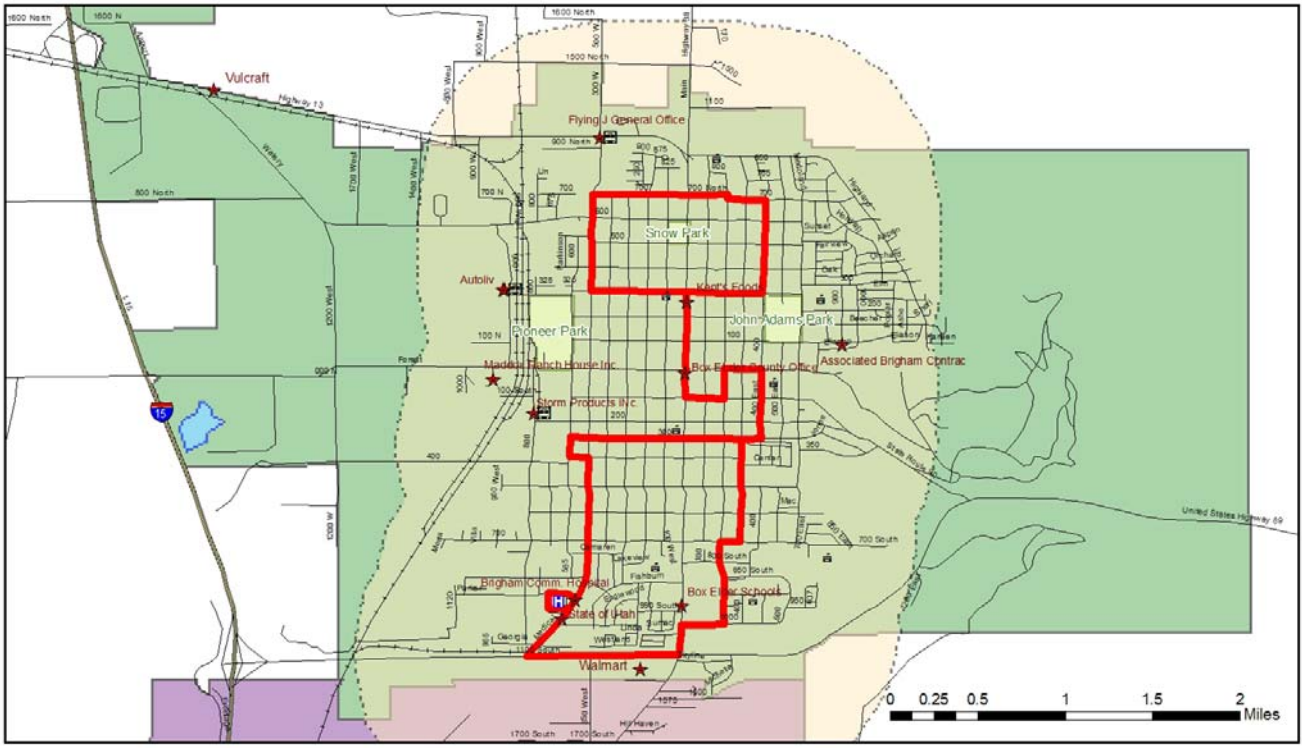
A recommended route that achieves these strategies is presented as Figure 12. As shown, a northern loop and southern loop would be operated, most likely in the clockwise direction to reduce the required number of left-turns, connected by a two-way route segment. This route, which is roughly 12 miles in length, would be operated once per hour. In addition, the vehicle would deviate up to 3/4 mile from the route to serve trip requests made by persons eligible under the Americans with Disabilities Act. General public trips off of the designated route would be provided only to specified on-request stops, such as at Autoliv, Storm Products, Inc., and the Flying J general office. Note that adequate running time would not be available to serve non-ADA requests to other locations, to serve Vulcraft (which could instead be served by other commute services as discussed above) or to serve the Bear River Migratory Bird Center Visitor Center (which would require at least 30 minutes of vehicle time to serve).

This service would be operated from on weekdays from approximately 6:30am to 6:30pm. It would require one vehicle in operation plus a backup vehicle, and would incur an annual operating cost of roughly $110,100 per year. Annual ridership on this service, based upon the transit demand analysis, the proportion of the community served, the quality of service, and observed ridership in other similar communities, is estimated to equal 12,000 passenger-trips per year. Subtracting $7,800 in fare revenues, total annual operating subsidy is estimated to equal $102,300.

11. Brigham City Local Route – Saturday Service

Another alternative would be to also provide Brigham City local service on Saturdays on a more limited schedule such as from 8:30am to 4:30pm. Based upon ridership estimates for the weekday service and the relative level of Saturday to weekday ridership observed in similar communities, this service is estimated to generate 1,200 passenger trips per year. Subtracting the $1,100 in farebox revenues from the $19,100 in incremental operating costs, the annual subsidy required to provide this service is forecast to equal $18,000.

Figure 12: Brigham City Local Service



F. Service between Portage and Brigham City – Figure 13

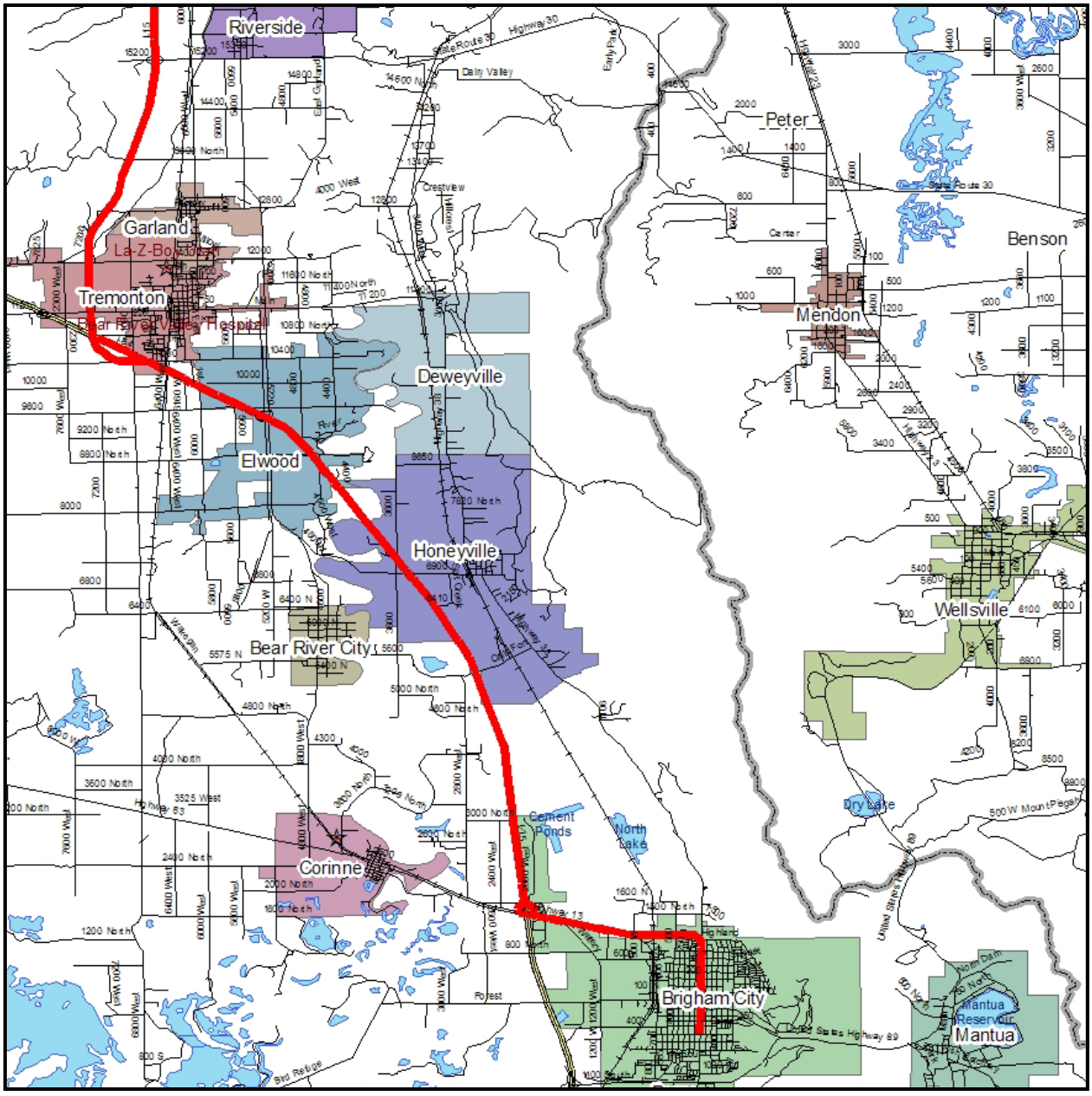
12. North County Rural "Lifeline" Service

A final service alternative is the provision of limited "lifeline" service to rural communities. Lifeline service is provided once per week with one morning and one afternoon roundtrip in order to provide rural residents with at least a limited opportunity to access urban shopping, medical, social service, and recreational amenities. In reviewing the demographics and transit demand characteristics of Box Elder County beyond the service areas of the alternatives discussed above, the sole potential corridor for rural lifeline service is the northern corridor, including Riverside, Fielding, Plymouth and Portage. A potential route is shown in Figure 13. Service would originate and end in Brigham City to provide direct access to facilities in Brigham City and because vehicles are assumed to be based there.

One morning run would be operated, arriving in Brigham City around 9:00am, along with one afternoon run departing Brigham City around 3:00pm. For purposes of this analysis, it is assumed that service is provided one weekday per week. Due to the limited service schedule, if a holiday falls on the day of service, then service would be provided on an alternate day for that week. This service is forecast to cost roughly $19,100 per year to operate.

Ridership can be estimated based upon the demographic characteristics of the service area and the use rate of similar lifeline services in other areas, to equal 1,200 one-way trips per year, or approximately 12 round-trips per day of service. Subtracting $800 in fare revenues, operating subsidy would equal $18,300 per year.

Figure 13: Rural Lifeline Service Between Brigham City and Portage



8. Performance of Service Alternatives

It is useful to compare the effectiveness, in terms of ridership per unit of service, and efficiency, in terms of ridership per dollar of input, of the various alternatives. Table 15 presents the analysis of costs and ridership associated with all 12 of the service alternatives.

Table 15: Transit Alternatives Cost and Ridership Comparison

Alternative	Operating Characteristics															
			Per 1-Way Run				Total Daily			Total Annual					Annual	
	# Vehs Required [1]	1-Way Runs Per Day	Time Hrs	Length Mi	Deadhead per Day Hrs	Deadhead per Day Mi	Veh. Serv Hrs	Veh. Serv Mi	Oper-ating Days [2]	Veh. Serv. Hours	Veh. Serv. Miles	Oper-ating Cost [3]	Ridership Impact (One-Way Trips) [4] Daily	Ridership Impact (One-Way Trips) [4] Annual	Farebox Reve-nue	Subsidy Required
1. Tremonton/Garland -- Brigham City Commute Service	2	14	1	25	3	69	17.00	419	255	4,335	106,845	$192,000	245	62,400	$49,900	$142,100
2. Tremonton/Garland -- Brigham City 1-Bus Mid-day Flex-Route Service	1	8	1	30	0	0	8.00	240	255	2,040	61,200	$100,300	155	39,600	$25,700	$74,600
3. Tremonton/Garland -- Brigham City 2-Bus Mid-day Flex-Route Service	2	15	1	30	0	0	15.00	450	255	3,825	114,750	$188,100	279	71,100	$46,200	$141,900
4. Tremonton/Garland -- Brigham City Saturday Flex-Route Service	1	8	1	30	0.5	0	8.50	240	51	434	12,240	$20,600	78	4,000	$2,600	$18,000
5. Logan -- Brigham City Commute Service	2	8	1	30	1	12	9.00	252	255	2,295	64,260	$108,700	106	27,000	$21,600	$87,100
6. Logan -- Brigham City Single Mid-Day Round Trip	1	2	1	30	0.5	6	2.50	66	255	638	16,830	$29,300	29	7,400	$5,600	$23,700
7. Logan -- Brigham City All-Day + Commute Service	2	20	1	30	1.75	12	21.75	612	255	5,546	156,060	$263,300	181	46,200	$34,700	$228,600
8. Brigham City -- Thiokol Commute Service	1	4	0.75	20	1	6	4.00	86	255	1,020	21,930	$42,300	75	19,000	$15,200	$27,100
9. Logan -- Tremonton -- Thiokol Commute Service	1	4	1.17	45	1	6	5.68	186	255	1,448	47,430	$74,800	64	16,300	$13,000	$61,800
10. Brigham City Local Route -- Weekday Service	1	12	1	14	0.5	6	12.50	174	255	3,188	44,370	$110,100	47	12,000	$7,800	$102,300
11. Brigham City Local Route -- Saturday Service	1	8	1	14	0.5	6	8.50	118	51	434	6,018	$15,000	24	1,200	$800	$14,200
12. North County Rural "Lifeline" Service	1	4	1.75	50	1	12	8.00	212	52	416	11,024	$19,100	23	1,200	$800	$18,300

Table 16 shows a performance analysis of each alternative based on the number of passengers, vehicle service hours and miles, costs of alternatives, and farebox revenues.

Table 16: Performance Analysis of Service Alternatives

	Performance Analysis				
Alternative	Marginal Passengers Per VSH	Marginal Passengers Per VSM	Marginal Cost Per Pass Trip	Marginal Subsidy Per Pass Trip	Marginal Farebox Ratio
1. Tremonton/Garland -- Brigham City Commute Service	14.4	0.58	$3.08	$2.28	26.0%
2. Tremonton/Garland -- Brigham City 1-Bus Mid-day Flex-Route Service	19.4	0.65	$2.53	$1.88	25.6%
3. Tremonton/Garland -- Brigham City 2-Bus Mid-day Flex-Route Service	18.6	0.62	$2.65	$2.00	24.6%
4. Tremonton/Garland -- Brigham City Saturday Flex-Route Service	9.2	0.33	$5.15	$4.50	12.6%
5. Logan -- Brigham City Commute Service	11.8	0.42	$4.03	$3.23	19.9%
6. Logan -- Brigham City Single Mid-Day Round Trip	11.6	0.44	$3.96	$3.20	19.1%
7. Logan -- Brigham City All-Day + Commute Service	8.3	0.30	$5.70	$4.95	13.2%
8. Brigham City -- Thiokol Commute Service	18.6	0.87	$2.23	$1.43	35.9%
9. Logan -- Tremonton -- Thiokol Commute Service	11.3	0.34	$4.59	$3.79	17.4%
10. Brigham City Local Route -- Weekday Service	3.8	0.27	$9.18	$8.53	7.1%
11. Brigham City Local Route -- Saturday Service	2.8	0.20	$12.50	$11.83	5.3%
12. North County Rural "Lifeline" Service	2.9	0.11	$15.92	$15.25	4.2%

As shown in the analysis presented in Table 16, the following can be concluded:

- The most effective alternative as measured in **Passengers per Vehicle Service-Hour** is the **Tremonton/Garland – Brigham City 1-Bus Flex-Route Service**. This alternative would carry over 19 passenger-trips per hour of service. It is followed closely by the Tremonton/Garland – Brigham City 2-Bus Flex-Route Service, and the Brigham City – Thiokol Commute Service, both of which would generate 18.6 trips per VSH. The least productive alternatives are the Brigham City Local Route options, and the North County Rural Lifeline Service, at roughly 3 to 4 passenger-trips per VSH. A standard of 10 passengers per VSH is commonly applied to transit services in more rural areas such as Box Elder County.

- Measured in **Passengers per Vehicle-Mile of Service**, the most effective option is the **Brigham City – Thiokol Commute Service**, followed by the two Tremonton/Garland – Brigham City Flex Route options. Again, the least productive alternatives are the Brigham City Local Route options, and the North County Rural Lifeline Service.

- The best measure of service efficiency is the **Subsidy Required per Passenger-trip**. As shown, the most effective alternative is the **Brigham City – Thiokol Commute Service**, which requires only $1.43 in subsidy for every passenger-trip, followed by the Tremonton/Garland – Brigham City 1-Bus Flex-Route Service at $1.88. At the other

extreme, the North County Rural Lifeline Service would require over $15 in subsidy for each passenger-trip served.

In general, the best alternatives consist of:

- the Tremonton/Garland – Brigham City Flex Route (excluding Saturday service)
- the Brigham City – Thiokol Commute Service
- the Tremonton/Garland – Brigham City Commute Service

At the other extreme, the Brigham City Local Route alternatives and the North County Rural Lifeline Service are the least efficient or effective options. The services to and from Logan along with the Tremonton/Garland – Brigham City Saturday service form a "middle tier."

In reviewing this information there may be other non-quantified factors such as the equity of the service that should be considered. It is also important to consider that fixed costs on the order of $350,500 per year would be incurred for any transit program, over and above the marginal cost of the various service alternatives. In addition, the ability to share program costs with other entities such as Cache County jurisdictions, or private employers may impact which alternatives are ultimately chosen.

9. Future Funding

Currently, ¼ cent sales tax is charged within the UTA service area which includes the cities of Brigham City, Perry, and Willard. Because UTA is the only service provider in the area, all of that sales tax revenue currently goes to them. Although the UTA service area serves only 50 percent of the Box Elder County population, it receives over 60 percent of the County sales tax revenue as Brigham City is generally the retail and shopping center for the County. According to 2001 state tax records, there were approximately $392 million of gross taxable sales and services purchased in Box Elder County with over $214 million purchased in Brigham City and approximately $30 million in Willard and Perry combined.

The current ¼ cent sales tax provides over $650,000 annual revenue in the UTA service area, which could be increased to just under $1 million if the transit sales tax were imposed countywide. UTA offers bus service in the area on routes 685 and 630. Generally UTA provides transit service in the range of $5.50 per passenger trip for a total annual operating cost of approximately $600,000. The remaining sales tax revenue of approximately $50,000 goes to paratransit service contracted by UTA to an outside provider.

Efforts in the Utah State Legislature to change the structure of the sales tax for transit funding have so far been unsuccessful. In the 2005 legislative session, UTA attempted to implement a statewide ¼ cent sales tax for transit, where the tax would be collected countywide rather than on a piecemeal or city by city basis such as is currently the case in Box Elder County. This effort was unsuccessful, but the concept of a consistent transit sales tax across all areas of the state might be revisited in future legislative sessions.

For the purposes of this report, various future sales tax scenarios were analyzed with respect to the proposed transit alternatives offered earlier in this report. The three future funding scenarios that were explored included:

- Countywide ¼ cent sales tax
- Countywide ½ cent sales tax
- Countywide ½ cent sales tax with commuter rail transit to Brigham City

It should be emphasized that the costs and other assumptions used in these analyses are planning-level assumptions only, and should be considered as such. More detailed analysis will need to be done before implementation of any transit program. In addition, cost savings may be realized through coordination with Cache Valley Transit, UTA, and through other means.

Countywide ¼ Cent Sales Tax

Table 17 assumes that the ¼ cent sales tax is extended to cover all of Box Elder County and that existing UTA service is maintained (routes 630 and 685) to Brigham City.

Table 17: Available Revenue for a Box Elder Transit Program Assuming a Countywide ¼ Cent Sales Tax

Approximate Annual Transit Sales Tax Revenue	$950,000
- UTA Costs for Routes 630, 685 and paratransit	-$650,000
- Annual Fixed Costs for Box Elder Transit Program (see Table 6)	-$350,500
- Estimated Annual Capital Costs	-$150,000
Total Available for Box Elder Transit Program	**-$200,500**

As is shown in Table 17, a ¼ cent sales tax collected on a countywide basis does not generate enough money to implement any of the Box Elder transit alternatives. In fact, when estimated annual fixed and operating costs are taken out of sales tax revenue, there is a deficit of funds available for additional transit. However, the additional funds generated through a countywide collection of the sales tax might allow UTA to provide more extensive or more frequent service within the County. Box Elder County or Brigham City officials may be able to discuss with UTA the possibility of things such as expanding UTA service to the Tremonton/Garland area or easing the process of becoming eligible for paratransit service, providing monthly opportunities to apply for eligibility in Brigham City, for example.

Countywide ½ Cent Sales Tax

Table 18 shows the approximate funds available for Box Elder transit routes if the transit sales tax were increased to ½ cent countywide. A ½ cent countywide transit sales tax would make the tax consistent with that currently being charged in Weber County. This would increase sales tax in Brigham City, Perry, and Willard by ¼ cent and increase sales tax in the rest of Box Elder County by ½ cent. The assumptions are similar to those in Table 17 in terms of how much continues to go to UTA for existing service as well as annual fixed and operating costs.

Table 18: Available Revenue for a Box Elder Transit Program Assuming a Countywide ½ Cent Sales Tax

Approximate Annual Transit Sales Tax Revenue	$1,900,000
- UTA Costs for Routes 630, 685 and paratransit	-$650,000
- Annual Fixed Costs for Box Elder Transit Program (see Table 6)	-$350,500
- Estimated Annual Capital Costs	-$150,000
Total Available for Box Elder Transit Program	**$749,500**

With approximately $750,000 available for new transit service in Box Elder County, the most robust of the 12 transit alternatives described earlier could be implemented. It is important to keep in mind that it would not include all 12 alternatives, as several of them assume previous alternatives in their descriptions and would be redundant. For example, for the Cache Valley to Brigham City route, both alternatives 5 and 7 would not be implemented, as alternative 7 assumes all of the service provided in alternative 5 plus additional service. Table 19 shows the costs of each alternative in terms of subsidy required, as well as how the total of the most

extensive of each alternative is close to the $750,000 total, and some cost-savings could be expected through coordination with Cache Valley Transit District and other means.

Table 19: Transit Alternatives Available for ½ Cent Countywide Sales Tax

	Alternative	Subsidy Required	
1	Tremonton/Garland -- Brigham City Commute Service	$142,100	**$142,100**
2	Tremonton/Garland -- Brigham City 1-Bus Mid-day Flex-Route Service	$74,600	NA – included in #3
3	Tremonton/Garland -- Brigham City 2-Bus Mid-day Flex-Route Service	$141,900	**$141,900**
4	Tremonton/Garland -- Brigham City Saturday Flex-Route Service	$18,000	**$18,000**
5	Logan -- Brigham City Commute Service	$87,100	NA – included in #7
6	Logan -- Brigham City Single Mid-Day Round Trip	$23,700	NA – included in #7
7	Logan -- Brigham City All-Day + Commute Service	$228,600	**$228,600**
8	Brigham City – Thiokol Commute Service	$27,100	**$27,100**
9	Logan -- Tremonton -- Thiokol Commute Service	$61,800	**$61,800**
10	Brigham City Local Route -- Weekday Service	$102,300	**$102,300**
11	Brigham City Local Route -- Saturday Service	$14,200	**$14,200**
12	North County Rural "Lifeline" Service	$18,300	**$18,300**
	Total Cost		**$754,300**

Countywide ½ Cent Sales Tax + Commuter Rail Transit

The UTA is in the final stages of developing an environmental document for commuter rail transit (CRT) between Salt Lake City and Pleasant View. Ultimately, the CRT line will extend north to Brigham City, and UTA and Brigham City officials are currently in discussions about what might expedite that process. UTA will build a separate rail line within the existing Union Pacific right-of-way between Salt Lake City and Ogden. Between Ogden and Brigham City, UTA is developing a "shared track agreement" which will outline the details of how each entity will use the existing track. Improvements to the track will need to be made, and it is unclear at this time to what extent improvements are needed, the cost of those improvements, and who will be responsible for making those improvements.

While the timing of CRT service to Brigham City is uncertain, it is likely to occur at some point. However, with the providing of CRT service to Brigham City, changes to existing UTA transit service are likely to occur and the amount of money that UTA will need to operate CRT will increase as well. Assumptions included in this analysis include:

- UTA's Route 685 which is a commute-only service would be discontinued
- CRT transit would, initially, operate only in the peak commute hours (morning and afternoon), replacing service now offered on Route 685
- The cost of CRT is estimated to be more than three times that of bus service.

Table 20 shows the approximate funds available for Box Elder transit after various UTA costs to operate CRT have been taken out.

Table 20: Available Revenue for a Box Elder Transit Program Assuming a Countywide ½ Cent Sales Tax and Commuter Rail Transit

Approximate Annual Transit Sales Tax Revenue	$1,900,000
- UTA Costs for Routes 630, 685 and paratransit	- $650,000
=	**$1,250,000**
+ cost of Route 685 (for discontinuing service)	+ $73,170
=	**$1,323,170**
Estimate of commuter rail transit operating costs (placeholder)	- $439,020
=	**$884,150**
- Annual Fixed Costs for Box Elder Transit Program (see Table 6)	- $350,500
- Estimated Annual Capital Costs	-$150,000
Total Available for Box Elder Transit Program	**$383,650**

The results shown in Table 20 indicate that when commuter rail transit is extended to Brigham City, less funding will be available for Box Elder transit alternatives, assuming that sales tax receipts remain at the same level. Commuter rail transit costs more than bus service, and there are benefits and trade-offs to commuter rail service. This forces leaders to make difficult choices regarding the provision of services in the area, due to the insufficient funds to pay for the complete Box Elder transit package discussed earlier. Possible areas of prioritization include:

- commuters
- providing access to households with no vehicles or people who are unable to drive for various reasons
- providing transit service between two areas such as Cache Valley and Brigham City.

Funding Sources

Acquiring funding for additional transit service will be a high priority for next phase of Box Elder transit. While a dedicated sales tax is the most stable method of funding such a program, it will need to be approved by voters and additional taxes are typically an uphill battle. Other sources exist to fund transit programs, primarily through the Federal Transit Authority (FTA). Below is a list of programs funded by the FTA and administered by the Utah Department of Transportation (UDOT). Information comes directly from UDOT's internet site: www.dot.state.ut.us.

FTA Section 5303 & 5313 Planning Programs

The FTA provides planning funding through annual grant requests from the States so that sufficient elements in the planning process can be completed to justify the flow of capital or operating funds to viable projects that have state and local government support for implementation. The Metropolitan Planning Organizations (MPO) prepare annual unified planning work programs (UPWP's) and submit them to UDOT for approval, which ties directly to the apportioned FTA 5303 planning funds earmarked for each State.

FTA 5313 funds are used by UDOT staff to take care of the statewide transit planning needs for areas outside the urbanized MPO boundaries, to conduct transit feasibility studies, provide five-year transit development plans on a regional basis, as needed, and to conduct special transit research studies. These funds are used to support the transit needs development in the short and long range transportation planning process which leads to transit projects approved by local government and the UDOT Commission for inclusion in the MPO Transportation Improvement Program (TIP), and the departments' Statewide Transportation Improvement Program (STIP), multi-year project implementation processes.

Proposed projects using FTA 5310 and 5311 monies cannot move forward if adequate planning is not completed beforehand. The annual MPO UPWP's and the departments' statewide planning work programs provide for this planning requirement. Federal funds to support the effort come from 5303 and 5313. The UDOT Commission currently distributes the 5303 funds to the MPO's based on each MPO' share of the total Urbanized population in the State, the same formula used in the Federal Highway Administration (FHWA) Planning(PL) program. Any MPO not reaching at least $10,000 using the formula for 5303 or $50,000 for the PL automatically receives that floor with the remaining balance distributed by each MPO's share of total urbanized population. The urbanized population figures used are published by the U.S. Census Bureau and/or mid decade adjustments made by the Governors Planning Office may be used.

Estimated MPO Planning funds under 5303 of the Transportation Equity Act (TEA-21) for UPWP efforts are growing slightly over the next several years, from $313,000 for FY2001, to $381,000 for FY 2004. The St. George Urbanized Area emerged during this period and added one more MPO to share in the funding. Similarly, estimated Statewide Planning funds under 5313 of TEA-21 for statewide planning will grow from $73,000 for FY 2001, to $96,000 for FY 2004.

For more information, contact Leone Harwood, 801-964-4508.

FTA Section 5311 Rural Public Transportation

The nonurbanized area formula program for public transportation is authorized by Title 49 U.S.C. §5311. The Federal Transit Administration (FTA), on behalf of the Secretary of Transportation, apportions the funds appropriated annually to the governor of each state for public transportation projects in nonurbanized areas. The statuary formula is based solely on the nonurbanized population of the states. Each state prepares an annual program of projects, which must provide for fair and equitable distribution of funds within the states, including Indian reservations, and must provide for maximum feasible coordination with transportation services assisted by other federal sources.

Program funds may be used for capital, operating, and administrative assistance to state agencies, local public bodies and nonprofit organizations (including Indian tribes and groups), and operators of public transportation services. There is no limitation on operating assistance. The state must use fifteen percent of its annual apportionment to support intercity bus service, unless the Governor certifies that the intercity bus needs of the state are adequately met. The amount which the state may use for state administration and for planning, and technical assistance activities is limited to fifteen percent of the annual apportionment. A separate annual allocation to the state under Section 5311 (b)(2) the Rural Transit Assistance Program (RTAP), may be used only for training, technical assistance, research, and related support activities. The maximum Federal share for capital and project administration is 80 percent (except for projects to meet the requirement of the Americans with Disabilities Act (ADA), the Clean Air Act, or bicycle access projects, which may be funded at 90 percent). The maximum FTA share for operating assistance is 50 percent of the net operating costs. No local share is required for state administration or RTAP.

These funds may be used to enhance the access of people in nonurbanized areas to health care, shopping, education, employment, public services and recreation; to assist in the maintenance, development, improvement, and use of public transportation systems in rural and small urban areas.

For more information, contact Tumau La'ulu, 801-964-4591.

FTA Section 5310 Specialized Paratransit Program

Under Title 49 U.S.C. §5310 the Federal Transit Administration's (FTA) authorizes the Secretary of Transportation to make grants to the chief executive officer of each state for allocation to:

a. private nonprofit corporations and associations for the specific purpose of assisting them in providing transportation services meeting the special needs of elderly persons and persons with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate;

b. public bodies approved by the state to co-ordinate services for elderly persons and persons with disabilities; or

c. public bodies which certify to the Governor that no nonprofit corporations or associations are readily available in an area to provide the services.

Section 5310 funds are apportioned among the states by a formula that is based on the number of elderly persons and persons with disabilities in each state according to the latest available U.S. census data.

The Federal share of eligible capital and program administrative costs may not exceed 80 percent of the net cost of the program. The local share of eligible capital and administrative costs shall be no less than 20 percent of the net cost of the program. All of the local share must be provided from sources other than Federal funds except where specific legislative language of a Federal program permits its funds to be used to match other Federal funds. The only exception to this rule is when the Federal share is 90 percent for vehicle-related equipment required by the Clean Air Act Amendments of 1990 (CAAA) or the Americans with Disabilities Act of 1990 (ADA). It is only the incremental cost of the equipment required by the ADA or CAAA that may be funded at 90 percent, not the entire cost of the vehicle, even if the vehicle is purchased for use in service required by the ADA or CAAA.

The goal of the Section 5310 program is to improve mobility for the elderly and persons with disabilities throughout the country. Toward this goal, FTA provides financial assistance for transportation services planned, designed, and carried out to meet the special transportation needs of the elderly and persons with disabilities in all areas - urbanized, small urban, and rural.

For more information, contact Cindy Lamb, 801-965-4545.

Rural Transit Assistance Program (RTAP)

The RTAP program consists of federal funding for transit research, training, and technical assistance. FTA grantees, as well as any group or individual dedicated to mass transportation, provision are eligible. Application training, assistance is advertised annually and are welcome anytime throughout the year. Reimbursement is usually 100 percent provided successful completion of training, and after all paperwork has been submitted. RTAP funds can be used for in-state and out-of-state training opportunities. Annual budget for this portion of RTAP training is approximately $13,000.00. An application blank can be found on UDOT's website.

Another aspect of the RTAP program is the technical assistance feature. The monies for this portion of the program are dedicated to provide transportation providers on-time assistance in the implementation and practice of sound transportation provision practice.

For more information, contact Cindy Lamb, 801-965-4545.

Van Pool Program
The Public Transportation Team (PTT) administers in cooperation with the Federal Highway Administration (FHWA) and the Utah Transit Authority (UTA), a no-interest loan van pool program. Interested employees or their employers are eligible to apply to UTA for the loan by submitting an application, which includes a description of the origin and destination of the proposed vanpool, a list of riders and their addresses, and a credit history of the driver or person responsible for the housing of the van. If approved by UTA, and if funds are available, the PTT approved non-profit van pool applicant may obtain bids for the vehicle size to meet the needs of the pool, which ranges from a 7 to 15 passenger capacity, from local dealers in their area. When the low bid is identified, the vanpool applicant then requests, through UTA, payment of the Federal share to the dealer. Approved van pool applicants must provide 6.7% of the cost of the vehicle to the local dealer. UDOT provides the remaining 93.3%. The vanpoolers contribute a monthly fee to the approved applicant which is used to pay back the loan with UTA. UTA, in turn, provides a bulk vanpool loan payback to UDOT on a regular basis.

Eligible agency employees, or employers may obtain the no-interest loan vanpool applications by contacting UTA's Rideshare department at 801-262-5626 extension 2065, or connecting to UTA's web page at www.utarideshare.com.

Other Possible Funding Sources
Other avenues for additional transit funding exist which deserve exploration. The possibility of sharing costs with CVTD/LTD for service provided between Cache Valley and Brigham City is a real possibility and an effective way to reduce costs for all agencies. In addition, USU should be approached with the possibility of helping to subsidize service between their Logan and Brigham City campuses. Major employers in the area might have interest in supplying transit alternatives to their employees, as well.

10. Institutional Issues

Several issues will need to be addressed by Box Elder County, Brigham City, and local transit officials before proceeding with implementing a Box Elder transit program. First, there are legal issues that will need to be addressed regarding UTA approval. Utah law says that an existing transit agency needs to approve any new service provider in the same area. Specifically, Utah Code reads:

> ***17A-2-1017. Consent required to control facilities – Competition with existing publicly or privately owned public carriers prohibited.***
> *…The District may not establish directly or indirectly, any public transit service or system or acquire facilities necessary or incidental thereto in manner or from that my divert, lessen, or compete for the patronage of revenues of a preexisting system of a publicly or privately owned public carrier furnishing like services without the consent of the public or private carrier.*

More details will need to be determined as to exactly how this approval happens, who needs to grant the approval, and other specific elements of this requirement.

Also to be considered is whether a new transit provider would be a transit district or a transit agency. A transit agency is created within the organizational structure of a larger entity, such as a city or county. A transit district is a separate organization, apart from any other larger group. The Logan Transit District is an example of a district as it is a department within Logan City government. The Utah Transit Authority is a transit agency.

Finally, any Box Elder transit program should coordinate with the Cache Valley Transit District/Logan Transit District as well as UTA to try to coordinate things such as service, routes, timing, and headways so that costs are minimized for all agencies and that service is provided to transit users as cost-effectively as possible.

11. Next Steps

The information contained within this report is an effective first step in expanding existing transit service or establishing new transit service within Box Elder County. However, it is only a first step. Box Elder County and Brigham City officials need to carefully consider the best next steps that will move them towards more comprehensive service to, from, and within the county.

First and foremost, funding of a new or expanded system needs to be thoroughly and thoughtfully deliberated. To this point, transportation providers in Box Elder County have been relying on grants, donations, and other sources that are unstable and vary over time. A sales tax dedicated to transit is the best way to ensure a consistent funding source and ongoing service throughout the area. However, as was discussed in a previous section, the existing transit tax in Brigham City, Perry, and Willard is not sufficient to fund expanded bus service throughout the county. An increase to ¼ cent countywide is also insufficient to implement new Box Elder transit service, given annual operating and capital costs and the cost of maintaining existing UTA service.

A sales tax increase to fund transit would need to be approved by voter referendum, and a tax increase can be difficult to justify to voters. Local leaders will need to decide who will lead the effort to put a tax increase out to voters. In addition, a public outreach campaign to educate voters on the benefits of transit and what exactly a sales tax increase would mean in terms of additional transit service should be done. Along with this effort, public opinion polling should be considered so that outreach can be targeted to demographic groups that are less likely to be supportive of such a tax.

Timing of a tax referendum is important as well. Politicians are likely to be concerned about a tax referendum on a ballot during a reelection year. Again, proactive public education efforts will help to minimize any “spill over” effects of controversial tax referendums.

Additional considerations include whether a new transit provider should be a transit district or transit agency, what each of these forms means, and what the advantages and disadvantages are. Also, whether or not to charge a fare should be carefully considered. While free fares likely increase transit ridership and ease financial strain for low income users, it also invites people to ride the bus for purposes of shelter or for gathering places for youth.

Finally, assuming that there are limited funds available for transit service in Box Elder County, local leaders are going to need to make difficult decisions regarding how to prioritize routes and services provided. Considerations may include:

- Should type of trip be given priority, such as commuters?
- Should geographic areas such as Cache Valley be prioritized for establishing routes?
- Should those with little other available means of transportation, such as the elderly, disabled, and low-income be given priority in establishing service?

Each of these questions will need to be carefully and thoughtfully considered during the planning process.

Appendix A: Additional Data

Box Elder County Major Employer Information

Table A-1: Major Employer Transit Demand Worksheet
Table A-2: Total Employees by Employer and Shift Time
Table A-3: Major Employer Daily Employee Transit Demand by Employee County of Residence

UTA Information

Table A-4: Average Passenger Loads on Route 630

Table A-1: Major Employer Transit Demand Worksheet

	Autoliv			La-Z-Boy	Nucor	Vulcraft	Thiokol	Walmart
	Bringham City	Tremonton	Promontory	Garland	Plymouth	Bringham City	West of Corinne	Corinne
Total Employment	1,800	450	275	1,000	370	315	2,960	666
Estimated Transit Demand	*27,000*	*6,750*	*4,125*	*15,000*	*5,550*	*4,725*	*44,400*	*9,990*
Day of Week								
Monday	1,800	337	275	1,000	370	315	2960	333
Tuesday	1,800	337	275	1,000	370	315	2960	333
Wednesday	1,800	337	275	1,000	370	315	2960	333
Thursday	1,800	337	275	1,000	370	315	2960	333
Friday	1,800	337	162	1,000	370	315	2960	333
Saturday	--	112	112	--	290	--	--	333
Sunday	--	112	112	--	290	--	--	333
Estimated Transit Demand								
Monday	*27,000*	*5,055*	*4,125*	*15,000*	*5,550*	*4,725*	*44,400*	*4,995*
Tuesday	*27,000*	*5,055*	*4,125*	*15,000*	*5,550*	*4,725*	*44,400*	*4,995*
Wednesday	*27,000*	*5,055*	*4,125*	*15,000*	*5,550*	*4,725*	*44,400*	*4,995*
Thursday	*27,000*	*5,055*	*4,125*	*15,000*	*5,550*	*4,725*	*44,400*	*4,995*
Friday	*27,000*	*5,055*	*2,430*	*15,000*	*5,550*	*4,725*	*44,400*	*4,995*
Saturday	--	*1,680*	*1,680*	--	*4,350*	--	--	*4,995*
Sunday	--	*1,680*	*1,680*	--	*4,350*	--	--	*4,995*
Residence of County								
Box Elder County	743	252	120	614	150	150	Not	400
Cache County	256	73	77	116	165	165	Available	167
Davis County	80	2	0	2	0	0	--	33
Weber County	388	34	50	38	10	10	--	33
Morgan County	3	--	--	--	--	--	--	--
Salt Lake County	2	--	--	--	--	--	--	--
Estimated Transit Demand								
Box Elder County	11,145	3,780	1,800	9,210	2,250	2,250	32800	5,994
Cache County	3,840	1,095	1,155	1,740	2,475	2,475	5800	2,498
Davis County	1,200	30	0	30	0	0	800	500
Weber County	5,820	510	750	570	150	150	4000	500
Morgan County	45	--	--	--	--	--	--	--
Salt Lake County	30	--	--	--	--	--	--	--
Subtotal by County	*22,080*	*5,415*	*3,705*	*11,550*	*4,875*	*4,875*	--	--
Shift			(Mon- Thu)					
Shift 1 (Mom - Fri)	5:45 AM - 2:00 PM	6:00 AM - 2:30 PM	5:00 AM - 3:30 PM	6:00 AM - 3:30 PM	7:00 AM - 7:00 PM	6:00 AM - 2:00 PM	6:00 AM - 4:30 PM	--
Shift 2 (Mon - Fri)	1:45 PM - 10:00 PM	2:00 PM - 10:30 PM	6:00 PM - 4:30 AM	4:00 PM - 1:30 AM	7:00 PM - 7:00 AM	2:00 PM - 10 PM	3:00 PM - 1:30 AM	--
Shift 3 (Mon - Fri)	9:45 PM - 6:00 AM	10:00 PM - 6:30 PM	--	--	--	--	10:00 PM - 8:30 AM	--
Non-Shift (Mon-Fri)							7:00 AM - 3:30 PM	
Shift 1 (Tue - Fri)	--	6:00 AM - 4:30 PM	--	--	--	--	--	5:00 AM - 4:00 PM
Shift 2 (Tue - Fri)	--	4:00 PM - 2:30 AM	--	--	--	--	--	2:00 PM -- 1:2:30 AM
			(Fri - Sun)	(Fri)				
Shift 1 (Sat - Mon)	--	5:00 AM - 5:30 PM	7:00 AM - 7:00 PM	6:00 AM - 10:00 AM	--	--	--	5:00 AM - 5:00 PM
Shift 2 (Sat - Mon)	--	5:00 PM - 5:30 AM	7:00 PM - 7:00 AM	4:00 PM - 8:00 PM	--	--	--	2:00 PM - 1:30 PM
# of Employment by Shift			(Mon- Thu)					
Shift 1 (Mom - Fri)	433	75	150	600	145	135	NA	--
Shift 2 (Mon - Fri)	433	75	75	400	145	115	NA	--
Shift 3 (Mon - Fri)	433	75	--	--	--	--	NA	
Non-Shift							2835	
Shift 1 (Tue - Fri)	--	112	--	--	--	--	--	133
Shift 2 (Tue - Fri)	--	112	--	--	--	--	--	133
			(Fri - Sun)	(Fri)				
Shift 1 (Sat - Mon)	--	112			--	--	--	133
Shift 2 (Sat - Mon)	--	112			--	--	--	133
Estimated Transit Demand								
Shift 1 (Mom - Fri)	*6,495*	*1,125*	*2,250*	*9,000*	*2,175*	*2,025*	--	--
Shift 2 (Mon - Fri)	*6,495*	*1,125*	*1,125*	*6,000*	*2,175*	*1,725*	--	--
Shift 3 (Mon - Fri)	*6,495*	*1,125*	--	--	--	--	--	--
Non-Shift							*42,525*	
Shift 1 (Tue - Fri)	--	*1,680*	--	--	--	--	--	*1,995*
Shift 2 (Tue - Fri)	--	*1,680*	--	--	--	--	--	*1,995*
Shift 1 (Sat - Mon)	--	*1,680*	*0*	*0*	--	--	--	*1,995*
Shift 2 (Sat - Mon)	--	*1,680*	*0*	*0*	--	--	--	*1,995*
	19,485	*10,095*	*3,375*	*15,000*	*4,350*	*3,750*	--	*7,980*

Alternate between M-Th and F-Sun

Assumed mode split 3.00%

Table A-2: Total Employees by Employer and Shift Time

Inbound - to work

	Autoliv			La-Z-Boy	Nucor	Vulcraft	Thiokol	Walmart
	Brigham City	Tremonton	Promontory	Garland	Plymouth	Brigham City	West of Corinne	Corinne
5:00 AM			150				--	266
5:15 AM							--	--
5:30 AM							--	--
5:45 AM	433						--	--
6:00 AM		187		600		135	Small #	--
6:15 AM							--	--
6:30 AM							--	--
6:45 AM							--	--
7:00 AM					145		2835	--
7:15 AM							--	--
1:45 PM	433						--	--
2:00 PM		75				115	--	266
2:15 PM							--	--
2:30 PM							--	--
2:45 PM							--	--
3:00 PM							Small #	--
3:15 PM							--	--
3:30 PM							--	--
3:45 PM							--	--
4:00 PM		112		400			--	--
4:15 PM							--	--
4:30 PM							--	--
4:45 PM							--	--
5:00 PM							--	--
5:15 PM							--	--
5:30 PM							--	--
5:45 PM							--	--
6:00 PM			75				--	--
6:15 PM							--	--
6:30 PM							--	--
6:45 PM							--	--
7:00 PM					145		--	--
7:15 PM							--	--

Outbound - from work

	Autoliv			La-Z-Boy	Nucor	Vulcraft	Thiokol	Walmart
	Brigham City	Tremonton	Promontory	Garland	Plymouth	Brigham City	West of Corinne	Corinne
5:00 AM							--	--
5:15 AM							--	--
5:30 AM							--	--
5:45 AM							--	--
6:00 AM	433						--	--
6:15 AM							--	--
6:30 AM		75					--	--
6:45 AM							--	--
7:00 AM					145		--	--
7:15 AM							--	--
1:45 PM							--	--
2:00 PM	433					135	--	--
2:15 PM							--	--
2:30 PM		75					--	--
2:45 PM							--	--
3:00 PM							--	--
3:15 PM							--	--
3:30 PM			150	600			2835	--
3:45 PM							--	--
4:00 PM							--	133
4:15 PM							--	--
4:30 PM		112					Small #	--
4:45 PM							--	--
5:00 PM							--	133
5:15 PM							--	--
5:30 PM							--	--
5:45 PM							--	--
6:00 PM							--	--
6:15 PM							--	--
6:30 PM							--	--
6:45 PM							--	--
7:00 PM					145		--	--
7:15 PM							--	--

Of those, 112 employees have schedules that vary every other week.
Employees may work overtime, but hard to say how many, when, and how much.

Table A-3: Major Employer Daily Employee Transit Demand by Employee County of Residence

	Employer and Site Location							
	Autoliv			La-Z-Boy	Nucor	Vulcraft	Thiokol	Walmart
County of Residence	Brigham City	Tremonton	Promontory	Garland	Plymouth	Brigham City	West of Corinne	Corinne
Box Elder	45	15	7	37	9	10	129	24
Cache	15	4	5	7	10	5	23	10
Davis	5	0	0	0	0	0	3	2
Weber	23	2	3	2	1	3	16	2

Table A-4: Average Passenger Loads on Route 630

Southbound Trips		Northbound Trips	
Trip Departure Time	Average Passengers	Trip Departure Time	Average Passengers
5:09	13.5	5:30	8.6
5:15	8	6:00	6.2
6:24	12.4	7:02	7.7
7:00	14.4	8:02	9
8:00	6.8	9:02	6.3
9:00	11.1	10:02	8
10:00	7.5	11:02	8.4
11:00	10.6	12:02	9.9
12:00	7.7	13:02	11.3
13:00	10	14:02	12.8
14:00	8	15:02	11.5
15:00	9.7	16:02	13.5
16:00	12.5	17:20	13.6
17:05	9.3	18:41	12.2
18:20	6.3	19:25	6.1
19:40	2.2	21:25	8.4
20:25	4.3		
22:25	2.7		

SOURCE: UTA, 2004 data through November.